Chapter 7. Social Resources

7.1. Cultural Resources

This section describes the setting and potential cultural resources impacts of the Proposed Project. Specifically, it describes existing conditions related to cultural resources and summarizes the overall regulatory framework for cultural resources that would affect implementation of the Proposed Project. This section then analyzes the potential impacts of the Proposed Project and its alternatives on cultural resources and identifies mitigation measures to address significant impacts, where appropriate.

- *Cultural resource* is the term used to describe several different types of properties: prehistoric and historical archaeological sites; architectural properties such as buildings, bridges, and infrastructure; and resources of importance to Native Americans.
- *Historical resource* is a CEQA term that includes buildings, sites, structures, objects, or districts, each of which may have historical, prehistoric, architectural, archaeological, cultural, or scientific importance, and is eligible for listing or is listed in the California Register of Historical Resources (CRHR).

7.1.1. Environmental Setting

Cultural resources are those locations, structures, and objects that have importance to the identity of a certain people or place and/or that can educate others and connect them to the important events of the human past. Coastal California possesses a rich prehistory and history of human occupation—by some accounts dating back to 13,000 years before present. The regional prehistory is represented by archaeological sites and artifacts, and its history is represented by surviving documents, structures, and submerged shipwrecks.

7.1.1.1. Ethnographic/Prehistorical Setting

The study region encompasses the traditional home of (from north to south) the Pomo, Coast Miwok, and Ohlone tribes.

The Pomo are divided into several groups, with the Kashaya, Southern, and Central Pomo inhabiting the coastal areas within the project area. The history of the Kashaya Pomo differs from that of other Pomo groups in that the first direct contact was with Russians at Fort Ross rather than with the Spanish further south. The Kashaya territory is within northern Sonoma County and Mendocino County. The territory of the Southern Pomo is within Sonoma County. Settlement along the coast typically involved one of two types of settlements: permanent villages at varying distances from the ocean and fresh water, and seasonal campsites located along the shoreline, mouths of rivers etc. Most permanent villages were inland and had greater populations that coastal camps. Deer, elk, and antelope were exploited, as were smaller mammals such as bird

and rabbits. The Pomo loived in three basic types of structures: dwelling houses, temporary structures, and subterranean houses.

The Coast Miwok territory is centerd in Marin and adjacent Sonoma Counties. Miwok is one of the Penutian language groups and is traditonally divided into two Miwok groups: Coast Miwok and Lake Miwok. Several placenames today are derived from the Miwok language: Olema, Tamalpias, Tomales, and Cotati to name a few. Much of the ethnographic accounts about the Coast Miwok come from early explorers to the Marin Coast. Both Drake in 1579 and Cermeno in 1595 encountered these groups. In 1811 and 1812, the well-known Russian colony of Fort Ross was established to hunt sea otters. Encounters with native Miwok and Pomo people are well documented. The environment of the Coast Miwok was partly coastal, with cliffs, bays, lagoons, and marshes forming the majority of the geography. Open valleys and grasslands slightly more inland also provided a rich supply of acorns, root plants, berries, and terrestrial game. Marine foods, mostly fish and shellfish, were staples of the Coast Miwok. Terrestrial game included rabbit, deer, bear, and elk. Acorns were the main starch and numerous meals were made from acorn meal and acorn breads. Dwellings were mostly conical, grass-covered structures, with interlocking poles. Large villages traditionally had sweathouses, dance houses, and other ceremonial centers. Clamshell disk beads were used for both currancy and adornment.

The Ohlone, formerly known as the Costanoan, occupied the coast from the San Francisco Bay in the north to just beyond present-day Carmel in the south, and as much as 60 miles inland. The Ohlone are a linguistically-defined group, speaking eight different but related languages and composed of several smaller, autonomous groups. The Ohlone languages, together with Miwok, comprise the Utian language family of the Penutian stock. They were hunter-gatherers, utilizing only the native flora and fauna for subsistence and tool-making, and practicing a rudimentary form of agriculture. Acorns and various kinds of seafood formed the basis of their diet, with a wide range of other foods exploited to a lesser extent, including assorted seeds, buckeye, berries, roots, land and sea mammals, waterfowl, reptiles, and insects. Their early agricultural practices entailed pruning and seasonally re-seeding locally occurring plants to optimize production. Acorns were among several of the foods stored for months at a time. Controlled burning of vast areas of land was carried out to promote the growth of seed-bearing annuals and to increase the available grazing areas for deer, elk, and antelope (CDFG 2007a).

7.1.1.2. Historical Setting

European Exploration

The first recorded European encounter of the California coast was Juan Rodriguez Cabrillo’s Spanish voyage in 1542, which landed in San Diego. Far fewer voyages were made to the northern region of Spanish Alta California, but the area was occasionally explored. Sir Francis Drake—an Englishman who, like Cabrillo, was searching for the fabled northwest passage to Asia across North America—sailed into

what is now Drake's Bay north of San Francisco in 1579. The first European to map the northern extent of the project area, Point Arena, was Spaniard Bartolomé Ferrelo in 1543, who originally named it *Cabo de Fortunas* (cape of fortunes). In 1595, Sebastian Rodriguez Cermeño's galleon *San Agustin* ran aground in Drake's Bay, becoming the first recorded shipwreck on the California coast. Spaniard Sebastian Vizcaino explored the California coastline in 1602–1603. Vizcaino's expedition led him to San Diego, then northward to Monterey Bay and on into what is now Oregon before returning to Acapulco. Spanish naval officer Juan Francisco de la Bodega y Quadra sailed on several expeditions between Mexico and Alaska; in 1775 he sailed through what he named Bodega Bay.

Expeditions were carried out by land as well as by sea. Gaspar de Portolà, sent overland in 1769–1770 to find the bay described by Vizcaino, strayed too far north and missed Monterey, but caught sight of San Francisco Bay. Gabriel Moraga, a Spanish army lieutenant, conducted an expedition in 1808 in pursuit of Indians who had fled the mission, and in search of new mission sites. Moraga began at Mission San Jose, traveled east into the San Joaquin Valley and north past Bodega Bay. In 1810, Moraga was again sent north to investigate rumors of Russian activity near Bodega Bay (Beck and Haase 1974).

The Spanish continued to explore the northern and southern American continents throughout the 16th and 17th centuries, claiming lands for the Spanish crown and in constant search for gold. Throughout this period, Spanish ships frequented the California coast following a trans-Pacific trade route via Manila that was opened in 1565, although their efforts were more concentrated in South America, present-day Mexico, and the present-day eastern United States (Rawls 1998; Taylor 2006).

The Mission System

Despite these occasional expeditions, European occupation of California did not begin in earnest until 1769, with the establishment of the mission system. Spanish padres of the Franciscan order constructed a series of missions, reporting to the Catholic Church in Spain, and exploiting converted Native Americans (called neophytes) as labor. The missions were usually established near the coast; four (San Diego, Santa Barbara, Monterey, and San Francisco) were associated with military outposts, or presidios; three (Los Angeles, Branciforte at Santa Cruz, and San José) were associated with agricultural- and trade-based colonist settlements or pueblos nearby. The northernmost mission was Mission San Francisco Solano, in what is now Sonoma, founded in 1823. After the overthrow of Spanish rule and the founding of the state of Mexico in 1821, control of Alta California passed from Spanish to Mexican hands. The missions were secularized in 1834 by order of Mexican governor José Figueroa; the surviving Indians dispersed or were driven off, and mission lands passed into private hands (Beck and Haase 1974; Robinson 1979).

California briefly existed as the northwestern edge of the Mexican state between the years of Mexico's independence from the Spanish crown in 1821 and the signing of

the Treaty of Guadalupe Hidalgo in 1848, which ended the Mexican-American War and ceded California and other territories to the United States. Americans gradually settled the state and continued to develop the agricultural and trade-based economy inherited from the Mexican period. The Gold Rush of 1849 drastically increased trade ship traffic along the California coast, bringing about a significant increase in the population of Americans of European ancestry; California was admitted as a state in 1850, further spurring the numbers of American immigrants. Trade transport remained primarily maritime until the completion of the first trans-continental railroad in 1869 and the proliferation of the rail web throughout the west. Maritime trade focused on the San Francisco Bay, due to its proximity to the state's gold reserves and the subsequent population and economic boom in the surrounding area, although smaller ports such as Monterey also became economic and residential hubs and served as major destinations along the route.

Russian Settlement

Russian fur trappers, having established permanent settlements in Alaska in the late 18th century, soon moved south in search of additional fur resources, trade partners, and potential settlements. In 1811, Alexander Kuskoff sailed into Bodega Bay and annexed the entire coastal area for the tsar of Russia. He named the nearby river the *Slavianki* (now known as the Russian River). The Russian American Company established what became Fort Ross (north of Bodega Bay) in 1812, and set up an agricultural operation and trade depot to support their chain of Bering Sea and Alaskan fur-trading bases. Several ranches, including Chernykh Ranch and Kostromitinov Ranch on the Russian River and Khlebnikov Ranch, were set up to supply Fort Ross with grain, Port Rumiantsev was established in Bodega Bay as a shipping and harbor center, and a hunting camp (called an *artel*) was built on the Farallon islands. Fort Ross was to become the largest Russian settlement on the west coast; the fort developed a brisk trade with Spanish Californians, despite the prohibition of outside trade by Spanish law. The Russians built a redwood stockade, and associated villages of Russian tradesmen, native Alaskan hunters employed to hunt seals and sea otters, and native Pomo employed as laborers grew nearby. By 1840, the sea otter population had been severely depleted by overhunting and the Russian American company ended the now-unprofitable enterprise, selling the land to John Sutter in 1841 (Hague [n.d.]; Lightfoot 2005).

Mexican Land Grants in the Project Area

Several ranchos, given to petitioners via Mexican land grants after the secularization of the missions, existed in the study area.

- Rancho German (or Hermann) occupied a strip of coastline in what is now Sonoma County from Fort Ross north.
- Rancho Muñiz (or Maniz) covered a coastal strip including the mouth of the Russian River at Jenner to the south.

- Rancho Bodega included the coastal area near Bodega Bay.
- Rancho Punta de los Reyes covered the area now known as Point Reyes.
- Rancho los Baulinas surrounded the Bolinas Lagoon.
- Rancho Saucelito extended over the area that is now Sausalito and the Marin Headlands.
- The San Francisco peninsula was controlled by Mission Dolores de San Francisco and the military installation, the Presidio de San Francisco. The civilian pueblo associated with the Presidio, first called Yerba Buena and later San Francisco, was also established on the peninsula.
- Further south on the peninsula, Rancho Laguna de Merced occupied the area surrounding Lake Merced; the northern boundary of what is now San Mateo County runs through this grant.
- In what is now San Mateo County, Rancho San Pedro lay along a coastal strip on the site of present-day Pacifica.
- Rancho Pilar, running from the south face of San Pedro Mountain past Point Montara to Pilarcitos Creek, later became Rancho Corral de Tierra (Beck and Haase 1974; Lightfoot 2005).

Historical Marine Protected Areas

In 1907, the California Legislature established one of the state's earliest MPAs with Monterey Bay (Stats 1907: Chapter 416). This "act to create a preserves for shellfish and invertebrate animals" prohibited the commercial take of all invertebrates between Point Pinos and the town of Seaside. This was the earliest "preserve," or MPA, established in the state. In 1913, the shellfish preserve language was amended to allow the take of "squid and devilfish" in the area (Stats 1913: Chapter 569). The same year, a similar provision was enacted which prohibited the use of lampara, paranzella, and trawl nets of any kind within Monterey Bay (Stats 1913: Chapter 567). While not a formal MPA, this provision additionally restricted fishing (primarilly commercial) within Monterey Bay and would have prevented any significant take of squid using net gear. A variety of other protected areas were established in California between 1909 and 1913, most of which focused on restricting commercial harvest. All of these historical MPAs were repealed by the same legislation that created the Fish and Game Code in 1933 [AB 310 (Scudder), Stats 1933: Chapter 73]. While it is not clear why the 1933 legislation did not move the historical MPAs into the new Code, it has been suggested by some fishermen that a need for inexpensive protein sources in the era between World War I and World War II created a relaxation in commercial fishing laws (J. Ugoretz pers. comm.).

7.1.1.3. Physical Setting

Because underwater development has not occurred and due to the difficulties of working underwater, extensive archaeological investigation of underwater cultural resources has not taken place. The inaccessibility of underwater sites and the difficulties posed by their investigation and recording have also meant that California's underwater archaeological record is not as extensive and complete as its land-based record. However, the state's rich maritime and coastal history (and prehistory) has produced a variety of sites and artifacts.

Much of the northern central coast region consists of steep, actively eroding coastal bluffs and small pocket beaches. An important factor in understanding coastal California's paleoenvironmental history is understanding the evolution of the estuary systems along the coast. Many early archaeological sites would have been present along estuary boundaries, in areas that have now been completely submerged. Because of this rise in sea level during the middle and early Holocene (15,000 to 10,000 years ago), many formerly land-based archaeological sites pertaining to the coastal activities of native inhabitants are now submerged. Prehistoric sites and artifacts include ceremonial sites; stone and shell tools; and shell and ceramic middens, shell mounds, and rock milling features that indicate food processing sites or larger inhabitation sites.

Shipwrecks are the most prominent historical artifacts that lie beneath the water. California's first recorded shipwreck is that of the San Augustin, which was driven ashore in 1595 at Drake's Bay, near Point Reyes. Since then, thousands of vessels have wrecked off California's rocky coast; the remains of many of these ships have yet to be discovered (Foster 2006). Chinese junks, Russian and Mexican sailing ships, American coastal traders, and Gold Rush-era steamships have all sunk in study region waters.

In preparing this, ICFJones & Stokes conducted a preliminary review of recorded archaeolgical sites mapped by the California Historical Resources Information System In addition, ICF Jones & Stokes corresponded with Native American tribes, groups, and individuals with known or possible interest in the coastal areas and compiled a list of recorded and non-recorded cultural resources, including traditional cultural properties[1] (TCPs). Numerous Native American archaeological sites are recorded along this portion of the California coast.

It should also be noted that there are likely many submerged resources, including prehistoric artifacts and sites, shipwrecks, and other historical sites lying beneath the water that have not been discovered or recorded due to the general lack of investigation. A review of the State Lands Commission shipwreck database listing, hundreds of shipwrecks are noted off of the coasts of San Mateo, San Francisco, Marin,

[1] According to the National Park Service National Register Publications, a traditional cultural properties can be defined generally as one that is eligible for inclusion in the National Register because of its association with cultural practices or beliefs of a living community that (a) are rooted in that community's history, and (b) are important in maintaining the continuing cultural identity of the community.

Sonoma, and Mendocino Counties. Mendocino County alone records 223 ships off of the coast, with San Mateo and San Francisco noting approximately 50 each. . Due to the sensitivity of known underwater resources and to prevent looting or other damage (intentional or unintentional) to the artifacts and sites, their precise locations are not disclosed in this document.

The study region does not contain any known, recorded TCPs.

7.1.2. Regulatory Setting

7.1.2.1. Federal Regulations

The National Historic Preservation Act (NHPA) of 1966, as amended, is the primary statute governing projects under federal jurisdiction that may affect cultural resources. If improvements implemented as a part of this Proposed Project were funded by the federal government or were part of a federal action, then this statute would apply. Section 106 of the National Historic Preservation Act [16 United States Code Section 470 (f)] requires that all federal agencies review and evaluate how their actions or undertakings may affect historic properties, including those already listed in national registers or that have not yet been reviewed and considered for such. The regulations implementing Section 106 are codified at 36 CFR Part 800 (2001). Because the Proposed Project is not federally funded and does not involve a federal action, the NHPA is not applicable to the Proposed Project or its alternatives.

7.1.2.2. State Regulations

CEQA provides extensive guidance on archaeological and historical resources management, as discussed below. In addition to CEQA, other state laws governing cultural resources and pertinent to the Proposed Project include PRC Section 5097.9 et seq. (Native American heritage) and California Health and Human Safety Code Section 7050.5 et seq. (human remains).

Records about Native American graves, cemeteries, and sacred places, as well as information about the location of archaeological sites, are exempt from being disclosed to the public under the California Public Records Act (California Government Code Section 6254.10).

California Environmental Quality Act

CEQA is the primary mandate governing projects under state jurisdiction that may affect cultural resources. Local agencies are required to consider potential significant environmental impacts to cultural resources as a result of Proposed Projects. CEQA Guidelines define three ways that a property may qualify as a *historical resource* for the purposes of CEQA review:

- The resource is listed in or determined eligible for listing in the CRHR.

- The resource is included in a local register of historical resources, as defined in Section 5020.1(k) of the PRC or identified as significant in a historical resource survey that meets the requirements of Section 5024.1(g) of the PRC, unless the preponderance of evidence demonstrates that it is not historically or culturally significant.
- The lead agency determines the resource to be significant as supported by substantial evidence in light of the whole record.

A cultural resource is eligible for inclusion in the CRHR if it:

- Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
- Is associated with the lives of persons important in our past;
- Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
- Has yielded, or may be likely to yield, information important in prehistory or history.

CEQA defines a *unique archaeological resource* as an archaeological artifact, object, or site that contains information needed to answer important scientific research questions, has a special and particular quality such as being the oldest of its type or the best available example of its type, or is directly associated with a scientifically recognized important prehistoric or historic event or person.

Native American Heritage Statute

PRC 5097.9 states that no public agency or private party on a public property shall "interfere with the free expression or exercise of Native American Religion." It also states that "No such agency or party [shall] cause severe or irreparable damage to any Native American sanctified cemetery, place of worship, religious or ceremonial site, or sacred shrine…"

Regulations on Human Remains

The disturbance of human remains without authority of law is considered a felony (Health and Safety Code Section 7052). If human remains are Native American in origin, they are within the jurisdiction of the NAHC (Health and Safety Code Section 7052.5c, PRC 5097.98).

According to state law (Health and Safety Code Section 7050.5, PRC 5097.98), if human remains are discovered or recognized in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until:

- the county coroner has been informed and has determined that no investigation of the cause of death is required, and
- if the remains are of Native American origin,
    - o the descendants from the deceased Native Americans have made a recommendation to the land owner or person responsible for the excavation work for means of treating or disposing of with appropriate dignity the human remains and any associated grave goods as provided in PRC 5097.98, or
    - o Native American Heritage Commission (NAHC) was unable to identify a descendent or the descendent failed to make a recommendation within 24 hours after being notified.

According to the California Health and Safety Code, six or more human burials at one location constitute a cemetery (Section 8100), and disturbance of Native American cemeteries is a felony (Section 7052).

7.1.3. Impact Analysis

7.1.3.1. Methodology

Due to the Proposed Project's scope and defined geographical boundaries, environmental analysis is limited to those resources that may be present within the water or buried beneath the sea floor; no consideration is given for land-based resources that exist in on-shore areas, as the project will not physically affect adjacent land. Cultural resources analysis also considers TCPs or areas associated with cultural practices or beliefs of a living community. Technical cultural resources investigation was not performed for this project because of its limited potential to adversely affect any resources that may be present in the area. Instead, this generalized discussion relies on publicly available documents and incorporates a recent records review conducted for a project proposed along the whole of the California coast.

7.1.3.2. Criteria for Determining Significance

Significance thresholds for assessment of cultural resources-related impacts for the Proposed Project are based on the criteria presented in Appendix G of the State CEQA Guidelines. The Proposed Project would result in significant impacts to cultural resources if it:

- causes a substantial adverse change in the significance of a historic resource as defined in Section 150654.5 of the CEQA Guidelines;
- causes a substantial adverse change in the significance of an archaeological resource pursuant to 15064.5 (CEQA Guidelines); or
- destroys directly or indirectly a unique paleontological resource or site or unique geologic feature.

7.1.3.3. Environmental Impacts

Maritime cultural resources are comprised of underwater resources, including prehistoric and historic artifacts, and shipwrecks, as well as above-ground historic resources, including ships, boats, structures and objects associated with the fishing industry (both related commercial and recreational/consumptive fishing uses).

Impact CR-1: Adverse Effects on Archaeological or Paleontological Resources.

Proposed Project: No Impact

The creation of a network component of MPAs would not have an adverse effect on underwater cultural resources existing within the study region, whether they be recorded, known but unrecorded, or yet unknown. The project proposes no physical alteration to the ocean floor or the bottom of relevant bays or estuaries, and therefore would not disturb any resources present. Restrictions proposed by the project would have a minor beneficial impact to any underwater resource that may exist within or beneath the MPAs by limiting fishing activity and thereby reducing the potential for accidental damage to resources. Current regulations prohibit all salvage and extraction of artifacts. The proposed MPA network component would not change this regulation.

The Proposed Project would not have an adverse effect on any TCPs that may exist in the study region. In accordance with PRC 5097.9, the CDFG will not interfere with the free expression or exercise of any Native American religious rites, and will not otherwise restrict traditional Native American cultural activities within the MPAs as long as those cultural activities do not include the take of living resources.

Mitigation—No mitigation is required because there would be no impact.

Alternative 1: No Impact

Potential effects associated with Alternative 1 would be the same as those described above for the Proposed Project. There would be no impacts to archaeological or paleontological resources associated with Alternative 1.

Mitigation—No mitigation is required because there would be no impact.

Alternative 2: No Impact

Potential effects associated with Alternative 2 would be similar to those described above for the Proposed Project. There would be no impacts to archaeological or paleontological resources associated with Alternative 2.

Mitigation—No mitigation is required because there would be no impact.

Alternative 3: No Impact

Potential effects associated with Alternative 3 would be similar to those described above for the Proposed Project. There would be no impacts to archaeological or paleontological resources associated with Alternative 3.

Mitigation—No mitigation is required because there would be no impact.

Impact CR-2: Adverse Effects on Maritime-Related Historical Resources

The establishment of the proposed MPA network component could potentially result in the loss of some existing consumptive uses (both commercial and sport fishing) that, in theory, could lead to an indirect loss of fishing industry-related historic resources. Such a loss would only occur if substantial fishing business failure was triggered throughout the industry by new MPA regulations. In this scenario, impacts to historic resources would occur only if historically significant buildings and structures were demolished or altered, and if no measures were formulated and implemented by maritime preservation organizations, planning or cultural institutions to preserve the threatened resources. This scenario is highly speculative. Furthermore, such an indirect effect is unlikely as the network component of MPAs proposed as part of the project would not impose significant new restrictions that are likely to substantially impair the fishing industry. The commercial fishing industry is currently well regulated (Hankin and Warner 2001), and even a conservative economic analysis of the proposed MPA regulations does not support a finding of significant adverse impact to the fishing industry (Wilen and Abbott 2006) such as would cause economic failure and the decay and loss of maritime properties.

Proposed Project: No Impact

The potential for substantial loss of fishing industry businesses, even on a localized level, leading to substantial decay or loss of maritime-related historic resources is speculative, and is not supported by economic analysis completed to date (Wilen and Abbott 2006). Therefore, the Proposed Project would not result in an impact to maritime-related historical resources.

Mitigation—No mitigation is required because there would be no impact.

Alternative 1: No Impact

Potential effects associated with Alternative 1 would be similar to those described above for the Proposed Project. While this alternative also would result in displacement of fishing effort within the central coast study region, this effect would be less than that of the Proposed Project; therefore, the potential for losses of maritime-related historic resources would be less than that of the Proposed Project. As such, Alternative 1 would not result in an impact to maritime-related historical resources.

Mitigation—No mitigation is required because there would be no impact.

Alternative 2: No Impact

Potential effects associated with Alternative 2 would be similar to those described above for the Proposed Project; however, this alternative potentially results in a slightly greater displacement of fishing effort. As mentioned above, the potential for substantial loss of businesses within the fishing industry, even on a localized level, is speculative, and not supported by economic analysis completed to date (Wilen and Abbott 2006). As such, Alternative 2 would not result in an impact to maritime-related historical resources.

Mitigation—No mitigation is required because there would be no impact.

Alternative 3: No Impact

Potential effects associated with Alternative 3 would be similar to those described above for the Proposed Project; however, this alternative potentially results in a slightly greater displacement of fishing effort. As mentioned above, the potential for substantial loss of businesses within the fishing industry, even on a localized level, is speculative, and not supported by economic analysis completed to date (Wilen and Abbott 2006). As such, Alternative 3 would not result in an impact to maritime-related historical resources.

Mitigation—No mitigation is required because there would be no impact.

7.2. Population and Housing

This section describes the existing setting and potential population and housing impacts of the Proposed Project and its alternatives. Specifically, it describes existing conditions related to population and housing within the affected counties as it relates to the ocean economy and industries. This section then analyzes the potential impacts of the Proposed Project and its alternatives on population and housing, focusing on the potential of the project to result in urban decay and blight.

7.2.1. Environmental Setting

California's marine and coastal environments form part of the state's identity and support important economies that depend on healthy ocean resources. Economic and social conditions affect marine resource use patterns, coastal livelihoods, and human activities. A brief overview of coastal population, ocean economy, and resource use in the region is provided as regional context. A detailed discussion of socioeconomic considerations with respect to consumptive uses (i.e., commercial and recreational fishing) can be found in Chapter 4 of this EIR.

7.2.1.1. Population Projections

Most of the population of California lives near the coast. Population growth trends in coastal counties will result in increasing pressure on and impacts to coastal and

marine resources and habitats. Sonoma County is projected to have the highest percent change in population growth (+ 11.84% for 2000-2010 and + 72.71% for 2000-2050) based on a demographic model that incorporates fertility, migration, and survival rates. (Table 7-1). As of 2000, San Francisco and San Mateo counties have the greatest population density in the study region based on people per square mile.

Many populations of the coastal counties in the study region are expected to grow, while other counties are projected to decline. San Francisco and San Mateo counties are expected to grow slightly between 2000 and 2010, but are expected to decrease by 9.4% and 9.6%, respectively by 2050 (Table 7.2-1). Rapid growth is occurring in counties where the average population density is currently the lowest.

Table 7-1. Total Population, Population Change, and Projected Growth in Coastal Counties in the North Central California Coast Study Region

Coastal County	Total Population 2000	Projected Population 2010	% Projected Population Change 2000–2010	Projected Population 2050	% Projected Population Change 2000–2050	People per Square Mile (2000)
Mendocino	88,852	94,300	8.58%	118,621	36.58%	24.6
Sonoma	461,347	515,968	11.84%	796,792	72.71%	291
Marin	248,473	252,440	1.60%	225,127	-9.40%	475.7
San Francisco	781,174	816,230	4.49%	706,192	-9.60%	16,634.4
San Mateo	710,493	747,134	5.16%	826,342	16.31%	1,574.7

Source: CDFG 2007a.

Population change is impacted by many factors, including economic indicators and availability of jobs. To give a greater context to the socioeconomic indicators of some of the communities within the study area, Table 7-2 is provided below.

Table 7-2. Population, Unemployment, Per-Capita Income, Median Household Income, and % of Population Below Poverty Line

Community	County	Population (2000)	Unemployment Rate	Per-Capita Income	Median Household Income	% Below Poverty Line
Point Arena	Mendocino	474	2.7%	12,591	20,083	26.0%
Bodega Bay	Sonoma	1,423	2.6%	37,226	56,818	4.0%
Point Reyes Station	Marin	818	1,1%	39,339	69,821	6.0%
Bolinas	San Mateo	1,246	0.7%	28,973	53,188	10.2%
Pacifica	San Mateo	38,390	2.5%	30,183	78,361	2.9%
Half Moon Bay	San Mateo	11,842	2.6%	37,963	78,473	6.1%

Source: CDFG 2007a.

7.2.1.2. Ocean Economy

California's marine and coastal environments form part of the State's identity and support important economies that depend on healthy ocean resources. Socioeconomic conditions affect marine resource use patterns, coastal livelihoods, and human activities and will be taken into account during the regulatory process. A brief overview of coastal counties, ocean economy, demographics, and resource use in the study region is provided as a regional context.

Data from the National Ocean Economics Program were compiled for each county and are discussed below. Data are from five ocean industry sectors, and include the number of people employed and wages paid. The ocean industry sectors are:

1. Coastal Construction—marine construction
2. Living Resources—fishing, fishing hatcheries and aquaculture, seafood markets and seafood processing
3. Offshore Minerals—limestone, sand and gravel; oil and gas exploration and production
4. Tourism and Recreation—amusement and recreation services, boat dealers, eating and drinking places, hotels and lodging places, marinas, recreational vehicle parks and campgrounds, scenic water tours, sporting good retailers, zoos and aquaria
5. Transportation—deep sea freight transportation, marine passenger transportation, marine transportation services, search and navigation equipment, and warehousing

Mendocino County

Mendocino County encompasses 3,510 square miles, and a coastline of roughly 100 miles. The north central coast study region includes only a portion of Mendocino County south of Alder Creek near Point Arena. This area represents a shoreline span of approximately 20 miles. Tourism is the primary industry in the country, distributed among five distinct regions: Anderson Valley, South Mendocino coast, North Mendocino coast, Northern Mendocino County, and the Russian River Valley (CDFG 2007a).

The data provided below in Table 7-3 is for Mendocino County as a whole, whereas the north central coast study region only encompasses a portion of the county south of Alder Creek near Point Arena. In terms of sectors of the economy which depend on ocean resources, "tourism and recreation" surpassed all other sectors in wages earned, at roughly $25 million per year. By comparison, the "living resources" and "transportation" sectors total wages were roughly $2–4 million annually.

Table 7-3. Ocean Economic Data in Mendocino County

	Employment				Wages			
	2001	**2002**	**2003**	**2004**	**2001**	**2002**	**2003**	**2004**
Construction								
Living Resources	204				$2,796,982			
Ship and Boat Building								
Minerals								
Tourism & Recreation	2,030	1,970	1,971	1,851	$25,283,369	$25,109,891	$25,111,377	$23,854,838
Transportation	133	127	109	125	$3,954,470	$4,341,909	$3,819,740	$4,305,849

Source: National Ocean Economics Program 2006.

Note: All dollar Values are converted to year 2000 equivalents. It should also be noted that contributions to California's Gross State Product (GSP) and totally wages by some sectors listed above for Mendocino County are not publicly available in order to protect the confidentiality of business establishments' information. Because of lack of data on contribution to GSP in Mendocino County, total wages is used to illustrate the scope of various sectors of the ocean economy. For Mendocino County, data were not available for construction, minerals and ship and boat building.

Sonoma County

Sonoma County encompasses 1,604 square miles and has a shoreline span of approximately 65 miles. It is considered the county with the highest projected population growth in the north central coast study area (+72.1% for 2000–2050). In terms of sectors of the economy which depend on ocean resources, "tourism and recreation" far exceeded other sectors in terms of wages, with $65 million per year. The "transportation" section followed with roughly $15 million per year, followed by "construction" with approximately $5 million. The "minerals," "living resources," and the

"ship and boat building" sector data are unavailable to protect confidentiality of business establishments (Table 7-4).

Table 7-4. Ocean Economic Data in Sonoma County

	Employment				Wages			
	2001	**2002**	**2003**	**2004**	**2001**	**2002**	**2003**	**2004**
Construction	122	122	168	184	$5,093,056	$5,145,221	$7,985,031	$8,455,791
Living Resources		4	6	9		$151,187	$244,937	$448,605
Ship and Boat Building								
Minerals		65				$6,751,758		
Tourism & Recreation	4,301	4,509	4,457	4,578	$61,851,011	$65,821,494	$65,117,119	$68,339,724
Transportation	359	341	330	431	$13,876,942	$14,383,792	$13,215,340	$16,433,349

Source: National Ocean Economics Program 2006.

Note: All dollar Values are converted to year 2000 equivalents. For Sonoma County, data were not available for ship and boat building.

Marin County

Marin County encompasses 580 square miles and its outer coast has a shoreline span of roughly 60 miles (excluding Tomales Bay). In terms of sectors of the economy which relate directly to ocean resources, "tourism and recreation" wages exceeded all other sectors with roughly $150 million in wages annually. The "construction" sector follows with roughly $10 million. Data on wages by the "minerals" sector were not available to protect the confidentiality of the few businesses in Marin County that participate in this sector (Table 7-5).

Table 7-5. Ocean Economic Data in Marin County

	Employment				Wages			
	2001	**2002**	**2003**	**2004**	**2001**	**2002**	**2003**	**2004**
Construction	143	156	159	106	$9,187,969	$11,747,614	$12,038,082	$7,972,815
Living Resources	13	40		N/A	$636,848	$1,443,826		N/A
Ship and Boat Building		23	23	26		$695,366	$773,241	$879,185
Tourism & Recreation	8,839	8,910	8,788	8,268	$150,257,201	$160,121,595	$155,448,287	$142,159,146
Transportation	25	26		25	$816,022	$822,427		$712,039

Source: National Ocean Economics Program 2006.

Note: All dollar Values are converted to year 2000 equivalents.

San Francisco County

San Francisco County encompasses just 47 square miles, and has a shoreline of 8 miles west of the Golden Gate Bridge. In terms of sectors of the economy which depend on ocean resources, “tourism and recreation” far surpassed all of sectors in terms of annual wages produced with $860 million. The “transportation” sector followed with $68 million in annual wages produced, followed by “living resources” and “construction” with $11 million and $4 million, respectively. The “minerals” and “ship and boat building” contribution to wages over the time are not available (Table 7-6).

Table 7-6. Ocean Economic Data in San Francisco County

	Employment				Wages			
	2001	**2002**	**2003**	**2004**	**2001**	**2002**	**2003**	**2004**
Construction	77	111	86	74	$3,770,193	$5,133,908	$3,260,991	$3,020,403
Living Resources	245	241	267	274	$8,572,053	$7,983,352	$8,274,529	$8,439,444
Ship and Boat Building				N/A				N/A
Tourism & Recreation	39,938	40,025	41,123	41,905	$840,663,560	$838,981,852	$857,382,901	$897,459,26-
Transportation	1,123	1,090	1,320	1,390	$58,860,726	$55,202,729	$84,513,258	$76,303,180

Source: National Ocean Economics Program 2006.

Note: All dollar Values are converted to year 2000 equivalents.

San Mateo County

San Mateo County encompasses 531 square miles and has a shoreline of roughly 50 miles. Most of San Mateo County is encompassed within the north central coast study region, with the exception of the portion of the county south of Pigeon Point (roughly 8 miles of coastline). The Santa Cruz Mountains act to divide the county, with the western side being more rural, characterized by farming, watersheds, parks and undeveloped lands.

Ocean industry data below are for the entire county, though as stated above, the study region does not include the entire county. Like the other counties in the study region, the "tourism and recreation" sector is the largest sector in terms of wages, with $400 million produced annually. The "transportation" and "living resources" sectors followed with $34 and $6 million respectively. Data on wages was unavailable for "construction," "minerals," and "ship and boat building" sectors (Table 7-7).

Table 7-7. Ocean Economic Data in San Mateo County

	Employment				Wages			
	2001	**2002**	**2003**	**2004**	**2001**	**2002**	**2003**	**2004**
Construction	50				$1,944,393			
Living Resources	155	158	81	88	$5,145,745	$5,997,930	$2,489,525	$3,577,056
Ship and Boat Building								
Tourism & Recreation	19,525	20,647	20,452	21,721	$355,186,081	$380,466,568	$360,908,561	$402,452,675
Transportation	1,034	803	578	443	$52,479,865	$36,296,861	$27,982,426	$19,980,136

Source: National Ocean Economics Program 2006.

Note: All dollar Values are converted to year 2000 equivalents.

7.2.2. Regulatory Setting

Coastal and open water jurisdictions, resource based agencies, and commissions are described in Chapter 1 of this EIR. No regulations pertaining specifically to population and housing are relevant to the Proposed Project.

7.2.3. Impact Analysis

7.2.3.1. Methodology

Impacts of the Proposed Project were evaluated qualitatively for the potential of the proposed MPA network component to induce population growth and/or economic blight. This evaluation utilized the economic and displacement analysis completed by Ecotrust (Scholz et al. 2005).

7.2.3.2. Criteria for Determining Significance

In accordance with Appendix G of the State CEQA Guidelines and professional judgment, the Proposed Project would have a significant impact if it would:

- Induce substantial population growth in an area, either directly or indirectly.
- Reduce commercial and recreational fishing activities within the region such that urban decay[2] results in the community.

7.2.3.3. Environmental Impacts

Impact PH-1: Induce Substantial Population Growth.

Proposed Project: Less than Significant

In the north central coast study region, three counties are projected to increase in population by 2050 (San Mateo, Sonoma and Mendocino County) and two counties (San Francisco and Marin) are projected to decline in population. Of the five coastal counties adjacent to the study region, Sonoma County is expected to have the largest increase in population change by year (see Table 7-1). The Tourism and Recreation industry employs the highest number of people in each of the five counties. Proposed MPAs are unlikely to have any direct effect on population or housing due to their nature as protection areas for underwater habitats. Potential indirect impacts from MPA establishment could include long-term increases in Tourism and Recreation employment as fishery resources improve and additional recreational boating, diving, and viewing activities are subsequently undertaken. These potential increases in employment could result in increased housing demand from new employees. However, the Tourism and Recreation industry within the north central coast region is expected to continue growing independent of MPA establishment, and attributing potential growth to the Proposed Project is speculative.

The Proposed Project would not directly induce substantial population growth within the study region. Consequently, this potential impact is considered less than significant.

Mitigation—No mitigation is required because impacts are not significant.

[2] *Urban decay* is the physical deterioration to properties or structures that is so prevalent and substantial that it is impairs their proper utilization, and the health, safety and welfare of the surrounding community. Physical deterioration includes, but is not limited to, abnormally high business vacancies, abandoned buildings, boarded doors and windows, parked trucks and long-term unauthorized use of properties and parking lots, extensive or offensive graffiti painted on buildings, dumping of refuse or overturned dumpsters on properties, dead trees and shrubbery and uncontrolled weed growth or homeless encampments.

Alternative 1: Less than Significant

Potential effects associated with Alternative 1 would be the same as those described above for the Proposed Project; therefore, impacts to population growth associated with Alternative 1 would be less than significant.

Mitigation—No mitigation is required because impacts are not significant.

Alternative 2: Less than Significant

Potential effects associated with Alternative 2 would be the same as those described above for the Proposed Project; therefore, impacts to population growth associated with Alternative 2 would be less than significant.

Mitigation—No mitigation is required because impacts are not significant.

Alternative 3: Less than Significant

Potential effects associated with Alternative 3 would be the same as those described above for the Proposed Project, therefore, impacts to population growth associated with Alternative 3 would be less that significant.

Mitigation - No mitigation is required because impacts are not significant.

Impact PH-2: Urban Decay Due to Decline of the Commercial Fishing Industry

Urban decay involves physical deterioration of other properties due to implementation of the Proposed Project. Urban decay is a compounding phenomenon that can result from extended vacancy, deferred maintenance, and abandonment of commercial buildings.

Proposed Project: Less than Significant

The ocean economies in the five north central coast counties are based primarily in the Tourism and Recreation industry. Although the establishment of MPAs might discourage some commercial fisherman from continuing work (along with the factors listed in Chapter 4 of this EIR), the business opportunities surrounding recreational boating, diving, and viewing activities may increase adjacent to and within MPA boundaries. The potential losses that might occur on a local level from a few individuals leaving the commercial fishing industry would not represent a substantial impact to the local economy. Furthermore, the potential for substantial loss of businesses within the fishing industry, even on a localized level, is not supported by economic analysis completed to date (Scholz 2005).

Additionally, protection of fisheries within the MPAs, coupled with the use of traditional fishery management tools, would likely contribute to sustainable fisheries

populations in the long term. Following recovery of rockfish stocks, commercial and recreational fishing may improve along the boundaries of some MPA areas. Contrary to urban decay, such recovery may contribute to the sustainability of the commercial fishing industry along the north central California coast. Potential short-term decline in commercial vessels docked within ports and harbors in the study region is unlikely to result in high vacancy rates or abandonment of port facilities. As stated above, the tourism industry is expected to continue substantial growth along the north central coast and harbor slips would likely be filled within fishing and non-fishing vessels.

Another factor that may influence urban decay is linked to current economic trends such as fluctuations in fuel prices. Shifting recreational and commercial access could require people to drive longer distances to reach their new preferred locations, which could result in increased usage of fuel. While fuel prices are high currently, it is hard to predict how they will fluctuate in the future, and where usage will shift when certain areas are restricted. Because this possible impact is speculative and hard to predict, it would be hard to link to urban decay.

Therefore, the Proposed Project would not result in urban decay within the north central coast region, and the Proposed Project's impact to the ocean economy and related industries would be less than significant.

Mitigation—No mitigation is required because impacts are not significant.

Alternative 1: Less than Significant

Potential effects associated with Alternative 1 would be similar to those described above for the Proposed Project. While this alternative also would result in displacement of fishing effort within the north central coast study region, the effect would be less than expected for the Proposed Project; therefore, potential urban decay impacts associated with Alternative 1 would be less than significant.

Mitigation—No mitigation is required because impacts are not significant.

Alternative 2: Less than Significant

Potential effects associated with Alternative 2 would be similar to those described above for the Proposed Project. While this alternative also would result in displacement of fishing effort within the north central coast study region, the effect would be less than expected for the Proposed Project; therefore, potential urban decay impacts associated with Alternative 2 would be less than significant.

Mitigation—No mitigation is required because impacts are not significant.

Alternative 3: Less than Significant

Potential effects associated with Alternative 3 would be similar to those described above for the Proposed Project; however, this alternative potentially results in a slightly greater displacement of fishing effort, thereby slightly increasing the potential for economic losses within the fishing industry. As mentioned above, the potential for economic decay resulting from substantial business losses within the fishing industry, even on a localized level, is speculative, and not supported by economic analysis completed to date (Scholz 2005). Therefore, potential urban decay impacts associated with Alternative 3 would be less than significant.

Mitigation—No mitigation is required because impacts are not significant.

7.3. Public Services and Utilities

This section describes the existing setting and potential public services and utilities impacts of the Proposed Project and its alternatives. Specifically, it describes existing conditions related to public services and utilities; analyzes the potential impacts of the Proposed Project and alternatives on public services and utilities; and identifies mitigation measures to address significant impacts, as appropriate.

7.3.1. Environmental Setting

Proposed MPAs are not currently served by public services and utilities due to their nature as protection areas for underwater habitats. Establishment of MPAs along the north central California coast would not impact provision of the following public services and utilities; therefore, these services and utilities are not addressed in this chapter.

- Solid waste disposal; and
- Gas and electric, cable, and communications utilities.

However, establishment of the MPAs could potentially disrupt or impact provision of law enforcement and/or emergency response services by increasing the demand for such services in and around MPAs. This is discussed further in the following setting and impact sections.

7.3.1.1. Water Supply, Wastewater Treatment or Storm Drainage Facilities

There are point sources in the north central coast study region where pollution enters coastal waters. Approximately 20 municipal wastewater treatment facilities are located in the north central coast study region and at least four discharge directly into the ocean (see Table 7-8). The largest of these four facilities is the San Francisco Oceanside Wastewater Treatment Facility, which is one of the biggest dischargers of wastewater in the state. Many more discharge facilities discharge into San Francisco Bay, which then enters the study region by flowing under the Golden Gate Bridge.

In the northern portion of the study region, on-site wastewater treatment and disposal systems are increasingly becoming permanent alternatives to centralized sewage systems. These on-site facilities have significant potential to cause water pollution, health hazards, and nuisance if not properly sited, designed, and maintained. As a result, specific policies are in place by the North Coast RWQCB. Furthermore, some water districts in the study region have switched from using chlorine to chloramines for treating tap water, which may have effects on aquatic life.

In addition to municipal wastewater treatment and disposal systems, other kinds of permitted pollution discharge points exist in the region; these point sources are also shown in Table 7-8.

Table 7-8. Point Sources in the MLPA North Central Coast Study Region

Point Source	Effluent	Pollution Rating
Municipal Wastewater Treatment Facilities		
Mendocino County Waste Water Disposal, Anchor Bay	Treated sanitary wastewater	Minor
San Francisco City and County Oceanside Waste Water Treatment Plant	Treated sanitary wastewater	Major
North San Mateo Waste Water Treatment Plant	Treated sanitary wastewater	Major
Mid-Coastside Waste Water Treatment Plant	Treated sanitary wastewater	Major
Other Permitted Pollution Discharge Points		
Bodega Bay Fish Farm	Aquaculture wastewater	Minor
University of California, Bodega Marine Laboratory	Marine lab waste seawater	Minor

Source: CDFG 2007a.

Another kind of point source within the study region includes wet weather outfalls, which are a source of untreated storm water. These exist throughout the study region, and include Mile Rock (Lands End) in the Presidio of San Francisco and several outfall structures on Ocean Beach, San Francisco.

7.3.1.2. Law Enforcement Assets

The CDFG's *Master Plan for Marine Protected Areas* (CDFG 2008b) notes that a lack of law enforcement resources is one of the reasons existing MPAs fall short of their potential to protect resources. (Fish and Game Code Section 2851 (a)). This lack of resources is not unique to the MPA context, and is true across all marine management activities in California. To remedy this, the MLPA requires that the Marine Life Protection Master Plan include recommendations for improving the effectiveness of enforcement practices. (Fish and Game Code Section 2856(a)(I),(J). Increased use of cooperative agreements between agencies is encouraged to ensure adequate enforcement. In addition, because of the added emphasis on MPAs established by the

MLPA and the clear need for increased enforcement resources, additional assets are required (CDFG 2008b). (Fish and Game Code Section 2856 (a)(2)(K)).

No single federal, state, or local agency has complete jurisdiction over the coastal and marine environment. Therefore, the CDFG works closely with the enforcement programs of the USFWS, U.S. Department of the Interior, NOAA Fisheries and Marine Sanctuaries, the U.S. Coast Guard, the National Park Service (NPS), and the California Department of Parks and Recreation on matters of mutual enforcement interest. Though these programs often provide financial or logistical support, they do not provide significant staff resources statewide, especially for offshore patrols or patrols of areas not adjacent to their own facilities. As part of seeking new cooperative agreements, the CDFG will make efforts to acquire more direct assistance from appropriate agencies. Effective enforcement of state and federal regulation within and around the MPA's will affect the success of MPA's in conserving and protecting marine resources.

California Department of Fish and Game

The CDFG has management authority over living marine resources within state waters. The CDFG's Law Enforcement Division wardens are charged with enforcing marine resource management laws and regulations over an area encompassing approximately 1,100 miles of coastline and out to the seaward boundary of the Exclusive Economic Zone (200 miles offshore). Enforcement duties include all commercial and sport fishing statutes and regulations contained in the Fish and Game Code and Title 14, California Code of Regulations, marine water pollution incidents, homeland security, and general public safety. General fishing regulations and other restrictions apply within MPAs but are subject to specific MPA restrictions. Furthermore, the CDFG has jurisdiction over any vessels that deliver catch to Californian ports, and all California-registered fishing vessels operating in federal waters. (CDFG 2007a.)

A federal Cooperative Enforcement Agreement with NOAA deputizes the CDFG to enforce the Magnuson Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), the Endangered Species Act, the Marine Mammal Protection Act (MMPA), the National Marine Sanctuaries Act, and the Lacey Act. CDFG enforcement patrols regularly extend into federal waters between 3 and 12 nautical miles from shore as well as the rest of the Exclusive Economic Zone (EEZ) beyond three nautical miles. A significant portion of both commercial and recreational fishing effort, and subsequently enforcement effort, occurs outside state waters in the EEZ.

The CDFG maintains a fleet of seven large patrol boats in the 54- to 65-foot class stationed at major ports throughout the state. A cadre of 22 wardens and 5 support personnel staffs these patrol boats. The CDFG also has 8 patrol boats in the 24- to 30-foot range, and another 15 patrol skiffs stationed at ports and harbors throughout the state. Overall, the CDFG has approximately 245 wardens in the field, responsible for a combination of both inland and marine patrol. Some of these wardens have a "marine emphasis" focusing primarily on ocean enforcement but also enforcing inland

regulations. CDFG wardens are peace officers whose authority extends to any place in the state. (Fish and Game Code section 856, Penal Code Section 830.1).

The CDFG's Special Operations Unit (SOU) consists of wardens who are tasked with conducting statewide covert investigations primarily dealing with the commercialization of fish and/or wildlife. SOU investigations investigate large poaching operations that are severely impacting California's fish and wildlife resources. The SOU reports directly to the Marine Assistant Chief out of Sacramento Headquarters. The unit has no uniform patrol responsibility anywhere in the state. The investigations conducted by SOU are varied, and include commercialization of recreationally caught or illegally taken bear, deer, turkey, abalone, lobster, sturgeon, salmon and steelhead, and a variety of other marine and wildlife species. The SOU may be used to assist with major MPA violations.

U.S. Fish and Wildlife Service

The U.S. Fish and Wildlife Service (USFWS) conserves, protects and enhances populations of fish, other wildlife, and plants. It also manages the system of National Wildlife Refuges. The system includes the following coastal refuges in California: Castle Rock, Humboldt Bay, San Pablo Bay, Marin Islands, Farallon, Don Edwards San Francisco Bay, Salinas River, Guadalupe-Nipomo Dunes, Seal Beach, and the Tijuana Slough. The Farallon National Wildlife Refuge is the only refuge within the north central study region (CDFG 2007a). USFWS agents have the authority to enforce the MMPA, Endangered Species Act, and Lacey Act (CDFG 2008b).

NOAA Fisheries

The CDFG has a Joint Enforcement Agreement with NOAA Fisheries. NOAA Fisheries provides funding to the state to enforce federal regulations in state waters, federal offshore waters and in bays, estuaries, rivers and streams.

National Marine Fisheries Service

The National Marine Fisheries Service (NMFS), a division of NOAA, has regulatory authority for marine finfishes, invertebrates, sea turtles and marine mammals other than sea otters in waters 3-200 nautical miles from shore. NOAA Fisheries derives its authority from the Magnuson-Stevens Act of 1976, the MMPA and the federal Endangered Species Act. Under the Magnuson-Stevens Act, NOAA Fisheries manages any fishery that is the subject of a fishery management plan developed by regional fishery management councils as well as some non-fishery management plan species (CDFG 2007a).

U.S. Coast Guard

U.S. Coast Guard is the primary maritime law enforcement agency (California Marine Life Protection Act Initiative 2005). The U.S. Coast Guard has a station in

Bodega Harbor and eastward of the Golden Gate Bridge at Point Bonita. They have 7 boats in their fleet, and enforce all state and federal standards (Fujii, Everett JD Lt, US Coast Guard, pers. comm.).

U.S. Park Police

The U.S. Park Police are a distinct federal agency that is empowered to enforce all CDFG regulations. They work within the Golden Gate National Recreation Area, and focus primarily on the built environment within the Park. They provide 24 hr coverage, and work closely with NPS to enforce regulations within the park (Whiteman, Cptn. Rick, U.S. Park Police, pers. comm.)

National Park Service

The NPS has several park lands located along the California coast including Redwood National Park, Point Reyes National Seashore, and Golden Gate National Recreation Area. Some key park lands in the north central coast study region are listed in Table 7-9.

Table 7-9. National Parks Adjacent to the Study Region

Name of National Park	County
Golden Gate National Recreation Area	Marin, San Francisco, San Mateo
Point Reyes National Seashore	Marin
Presidio of San Francisco	San Francisco
Fort Point National Historic Site*	San Francisco
Muir Woods National Monument	Marin

Source: CDFG 2007a.

* encompassed within the Golden Gate National Recreation Area.

Within the Golden Gate National Recreation Area, which encompasses 75,000 acres, the Law Enforcement Division is responsible for patrolling roughly 35 miles of coastline spanning from Point Reyes in Marin County down into San Mateo County. The staff of the Law Enforcement Division includes approximately 24 Law Enforcement Park Rangers, with approximately 10 to 12 Rangers patrolling within the jurisdictional area of the park at any given time. NPS collaborates regularly with the CDFG, the Coast Guard, and the County Sheriff's Department to achieve their enforcement goals. While NPS does not have available resources for marine-based patrols, it does assist the Coast Guard and Sheriff's Department in their efforts in this area. The enforcement budget for NPS is dependent on federal funding, and is not projected in increase in the near future.

The Point Reyes National Seashore is the other National Park within the north central coast study area. The park encompasses 70,000 areas, with jurisdiction reaching ¼ mile offshore. There are a total of 11 rangers, with 4–8 Law Enforcement

rangers on duty at any given moment. Furthermore, the park possesses 3 response boats, an 18 ft Boston Whaler, a 25 ft Boston Whaler, and a 29 ft Safe Boat. Law enforcement rangers utilize these boats to assist the Coast Guard in rescue operations, vessel safety inspections.

California Highway Patrol

The California Highway Patrol (CHP) works in conjunction with other agencies, especially in the northern section of the study region, to enforce regulations along the coastline.

California Department of Parks and Recreation

The Department of Parks and Recreation manages approximately one-third of the California coastline and manages coastal wetlands, estuaries, beaches and dune systems within State Park system units. Through State Lands Commission Leases, the California Department of Parks and Recreation has the management authority over fifteen underwater areas, though it does not have the authority to restrict the take of living marine resources. The California Parks and Recreation Commission has the authority to establish, modify, or delete state marine reserves, state marine parks, and state marine conservation areas, but must have the concurrence of the California Fish and Game Commission on any proposed restrictions related to the extraction of living marine resources (PRC Section 6725).

State and Regional Parks provide law enforcement services within respective park boundaries, and both are managed on a county level. Rangers from both offices are empowered to enforce state and federal regulations, and generally stay within the jurisdictional boundaries of their parks. They also often collaborate with other agencies such as the county sheriffs, coast guard, and NPS to ensure full coverage of the coastline.

Harbor Police

Local harbor districts, sheriff and police departments often employ peace officers to conduct on-water patrols within their jurisdictions. This is especially true at the Pillar Point Harbor in San Mateo County, as Coast Guard coverage of the area is limited by distance. The Pillar Point Harbor Patrol is empowered to enforce the California Harbors and Navigation Code, and the San Mateo County Harbor Ordinance Code. There are 10 uniformed staff on the patrol, and they assist the Coast Guard with Search and Rescue operations, as well as enforcing harbor regulations (Temko, Dan, Pillar Point Harbor, pers. comm.).

Sheriffs

Law enforcement services provided by Sheriffs are on the county level. Police departments in cities such as San Francisco and Half Moon Bay contribute as needed

to provide enforcement. The Sheriff's Department often works in collaboration with other agencies such as the National Parks Service Law Enforcement Division, the State Park Police and the U.S. Coast Guard. The following is a description of available resources from Sheriff's offices on the coast by county.

In Mendocino County, the study area encompasses land south of Point Arena, where there is a Sheriff's substation. There are 2 patrols on staff at this substation, and coverage is shared between the two staffers, one Deputy and one Sergeant, with areas of up to 14 hours with no coverage in the area. In emergencies, coverage in the area is bolstered with support from the Fort Bragg substation, which has 12 officers on staff. Furthermore, there is one boat at the Fort Bragg substation, which is also available in emergencies, but does not regularly patrol the south Mendocino coast (Bushnell. Lt., Mendocino County Sheriff's Office, Ft. Bragg Substation, pers. comm.)

In Sonoma County, there are three Deputies on staff and two on duty per shift at any given time. Furthermore, there is a boast unit, which is partnered with Marine Lab in Bodega Bay. The Sheriff's Department collaborates with CDFG, as well as State and County parks for enforcement goals (Zunino, Deputy, Sonoma County Sheriff's Office, pers. comm.).

In Marin County, there are two deputies on duty per shift at any given time, as well as one sergeant on duty. Furthermore, the Marin County Sheriff's department has one boat detail, which mainly patrols Richardson Bay and Loch Lomond, but works in conjunction with the U.S. Coast Guard where there is need for additional patrol or support. Growth in the Sheriff's Department is proportional to population growth for the county, and with a slight decrease in population projected within the County by 2050, law enforcement services can be expected to remain the same, or decrease slightly (Hanson, NPS, pers. comm.).

In San Mateo County, there are five deputies and one sergeant on patrol 24 hours per day. Furthermore, the Sheriff's Office works with the San Mateo County Harbor District and the Coast Guard to provide marine-based law enforcement in the area. The Sheriff's Office has four boats, which are held in Redwood City and Coyote Point, and are not used to regularly patrol the waters (Jones, Ken, San Mateo County Sheriff's Office, Moss Beach Substation, pers. comm.).

The San Francisco County shoreline is patrolled by the National Parks Service Park Police and U.S. Coast Guard. The San Francisco County Sheriff's Department does not assist to the U.S. Coast Guard or National Parks Service Park Police to patrol the San Francisco County shoreline.

7.3.1.3. MPA Enforcement Considerations

The level and type of enforcement activity in an individual MPA depends upon the objectives of the individual MPA and its accompanying regulations. In some cases, MPAs may be enforced without direct contact of individual vessels, such as in state marine reserves where a vessel is obviously not engaged in fishing. In limited-take areas, the specific regulations may require close examination of individual vessels to determine whether fishing activities comply with the regulations (e.g. whether a fishing vessel stows its gear while transiting a no-take area).

Beyond the MPA classification, other elements of MPA design have implications for an effective enforcement plan. The following factors facilitate enforcement of MPAs:

- Straight line offshore boundaries which follow lines of latitude and longitude—more easily recognized by users and enforcement is simplified.
- Larger shoreline lengths—provide a buffer against unintentional boundary infractions.
- Proximity to cities—enhances the ability to enforce as more assets are readily available and deployment of staff and equipment is easier; however may pose problems for level of use.
- Distant from heavily used areas—areas near urban development are often more heavily visited and require more enforcement effort to ensure compliance.
- Fewer points of public access—requires less monitoring and staffing than MPAs with multiple access points (e.g., multiple shoreside access points versus only offshore access)
- Adjacent to the shoreline—enforceable using smaller vessels and shoreside patrol when compared to offshore MPAs with no shoreline connection.
- Adjacent to onshore facilities—existing staff (e.g., state park rangers) can assist in enforcement and monitoring.

The number of and distance between MPAs also impacts the CDFG's ability to enforce the MPA regulations. If MPAs are too far from one another, individual patrols are not able to enforce multiple areas. If MPAs are too numerous, individual patrols are not able to reach all areas. Each case would require additional enforcement personnel to cover the entire network component of MPAs. Finally, the enforcement plan must consider natural barriers to enforcement. MPAs established in areas with normally rough conditions may be difficult to patrol or access. Offshore MPAs require larger vessels and dedicated at-sea patrol. MPAs located farther offshore or more distant from ports have higher patrol costs in both time and expenses. Though MPAs in very remote and difficult-to-access areas will naturally have fewer visitors and a decreased chance of unintentional violations, they are also uniquely suited for unobserved intentional violations.

7.3.1.4. Emergency Response Services

The U.S. Coast Guard, the primary maritime law enforcement agency, currently provides emergency response within existing MPAs. Search and Rescue (SAR) is one of the Coast Guard's oldest missions. Coast Guard SAR response involves multi-mission stations, cutters, aircraft, and boats linked by communications networks. Emergency response services include distress monitoring, communications, provision of medical advice, initial medical assistance, and/or medical evacuation. The Coast Guard develops, establishes, maintains and operates rescue facilities for the promotion of safety on, under, and over international waters and waters subject to U.S. jurisdiction, conducts safety inspections of most merchant vessels, and investigates marine casualties.

7.3.2. Regulatory Setting

Coastal and open water jurisdictions, resource based agencies and commissions are described in Chapter 1 of this EIR.

7.3.2.1. Marine Protected Areas Enforcement Plans

The MLPA identifies adequate enforcement as a program goal [California Fish and Game Code Section 2853(c)(2)]. To this end, the CDFG will prepare enforcement plans for the proposed MPAs once established. The primary purpose of an MPA enforcement plan is to ensure compliance with regulations designed to achieve the individual MPA objectives. The objectives of the enforcement plan include the following three primary categories:

1. Provide an effective and comprehensive operational ability.
2. Maintain and enhance cooperative efforts with other agencies.
3. Ensure public awareness of regulations and rationale and provide enhanced public outreach and education.

Priorities are to be developed based on the potential for resource impact, level of use, and potential for infractions. High priority areas include habitats that are particularly vulnerable to damage, areas with high aggregations of critical species or species at low abundance, and areas where infractions are likely to occur or have occurred at high rates in the past.

7.3.3. Impact Analysis

7.3.3.1. Methodology

Impacts of the Proposed Project were evaluated qualitatively, based on the potential for MPA establishment to disrupt existing utilities and services.

7.3.3.2. Criteria for Determining Significance

Based on Appendix G of the State CEQA Guidelines and professional judgment, it was determined that the Proposed Project would result in a significant impact on public services if it would:

- Significantly increase the need for enforcement of federal, state, and/or local laws and regulations.
- Result in the need for new or physically altered governmental facilities, in order to maintain acceptable service ratios, response times, or other performance objectives for police, fire, or emergency response.

7.3.3.3. Environmental Impacts

Impact PSU-1: Increased Demand on Law Enforcement Services.

Proposed Project: Less than Significant

New limitations on extractive activities established by the MPAs represent new regulations that would likely result in the need for additional enforcement, particularly in the short-term as these become implemented. In order to adequately enforce MPA regulations, the CDFG would prioritize areas of particular concern or at particular risk and emphasize patrol of these areas. Patrols would be needed to keep fishing boats from illegally taking species from within designated MPAs. Furthermore, illegal take of red abalone, especially in Sonoma and Mendocino County is already a significant issue among law enforcement officers in the study region. There is a concern that the MLPA initiative will increase poaching of abalone in particular, and would therefore cause an increased strain on law enforcement personnel (Bushnell, Lieutenant, Mendocino County Sheriff's Office, Fort Bragg substation, pers. comm.). Regular, visible, and consistent patrol would be needed to ensure compliance, in addition to adequate outreach to ensure public knowledge of regulations and areas. The need for increased patrol efforts would be greater initially upon implementation of the new regulations, and would likely decrease over time as public knowledge of the regulations and areas becomes more widespread.

The agencies that currently provide law enforcement services for the north central coast would continue to patrol the MPA areas. Increased use of inter-agency cooperative agreements may also facilitate enforcement and will be addressed in the MLPA program enforcement plan. Since existing law enforcement resources would not be redirected from patrol services elsewhere in the state, potential impacts to public services would be less than significant[3].

[3] Enforcement actions by regulatory agencies, such as law enforcement activities by peace officers acting under any law that provides a criminal sanction, are categorically exempt under CEQA (Public Resources Code Sections 21083 and 21087); see also CEQA Guidelines Section 15321 [Class 21 Exemption].).

Mitigation—No mitigation is required because impacts are not significant.

Alternative 1: Less than Significant

Potential effects associated with Alternative 1 would be similar to those described above for the Proposed Project. Due to the reduced MPA network component area provided in Alternative 1, demand for additional law enforcement would be less than that of the Proposed Project. Impacts to enforcement services associated with Alternative 1 would be less than significant.

Mitigation—No mitigation is required because impacts are not significant.

Alternative 2: Less than Significant

Potential effects associated with Alternative 2 would be similar to those described above for the Proposed Project. Due to a slightly larger MPA area, demand for additional law enforcement could be comparably greater than that of the Proposed Project. However, impacts to enforcement services associated with Alternative 2 would be less than significant with implementation of the mandated MLPA enforcement plan.

Mitigation—No mitigation is required because impacts are not significant.

Alternative 3: Less than Significant

Potential effects associated with Alternative 3 would be similar to those described above for the Proposed Project. Due to a slightly larger MPA area, demand for additional law enforcement could be comparably greater than that of the Proposed Project. However, impacts to enforcement services associated with Alternative 3 would be less than significant with implementation of the mandated MLPA enforcement plan.

Mitigation—No mitigation is required because impacts are not significant.

Impact PSU-2: Increased Demand on Emergency Response Services.

Proposed Project: No Impact

Establishing MPAs would be unlikely to create additional demand for emergency response services along the coast. Designating some portions of the coast as MPAs would likely shift commercial and recreational anglers to other areas with fewer restrictions. Although implementation of SMRs would reduce potentially risky behavior within those boundaries, continued commercial and recreational fishing would shift Coast Guard SAR activities to areas adjacent to MPA boundaries.

Demand for emergency response services will likely remain stable following implementation of the proposed MPAs; therefore, there would be no impact to emergency response services.

Mitigation—No mitigation is required because there would be no impact.

Alternative 1: No Impact

Potential effects associated with Alternative 1 would be similar to those described above for the Proposed Project. There would be no impacts to emergency response services.

Mitigation—No mitigation is required because there would be no impact.

Alternative 2: No Impact

Potential effects associated with Alternative 2 would be similar to those described above for the Proposed Project. There would be no impacts to emergency response services.

Mitigation—No mitigation is required because there would be no impact.

Alternative 3: No Impact

Potential effects associated with Alternative 3 would be similar to those described above for the Proposed Project. There would be no impacts to emergency response services.

Mitigation—No mitigation is required because there would be no impact.

7.4. Recreation

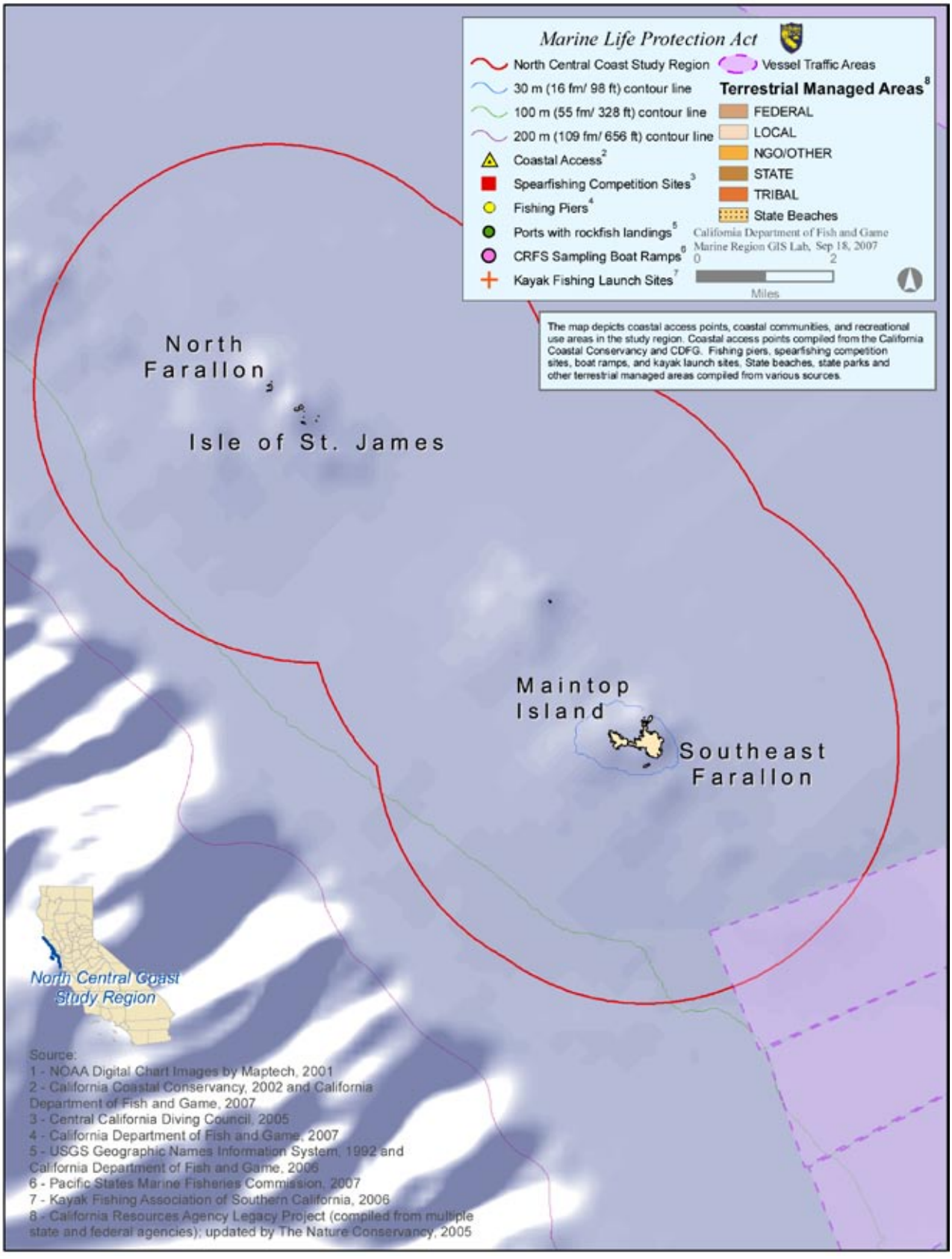
This section describes the existing setting and potential recreational impacts of the Proposed Project and its alternatives. Specifically, it describes existing conditions related to recreational opportunities and facilities, and summarizes the overall federal, state, and regional/local regulatory framework for recreational resources that would affect implementation of an MPA network component. This section also analyzes the potential impacts of the Proposed Project on recreational resources and identifies mitigation measures to address significant impacts, as appropriate.

Recreational resources within this section focus on non-consumptive recreational uses (e.g., diving, wildlife viewing, kayaking, etc.), and also looks at trends and hot spots for more popular consumptive recreation uses. Consumptive recreational uses (i.e., fishing) are described in greater depth in Chapter 4—Consumptive Uses and Socioeconomic Considerations.

7.4.1. Environmental Setting

7.4.1.1. Recreational Activities

In 1999 and 2000, more than 43% of all Americans participated in some form of marine recreation. Americans flock to beaches and shores to swim, fish, boat, and enjoy the natural scenery. During the coming years, populations in the coastal zone are projected to increase, as is the total number of people participating in all forms in marine recreation, with the largest increases expected for beach going activities. Despite this expected increase in the total number of individuals participating in marine recreation, the percentage of all people engaged in marine recreation is expected to decrease. California ranks second to only Florida in the number of participants in coastal recreation with nearly 18 million participants, most of whom take part in one of the 17 non-consumptive activities listed in Table 7-10 (CDFG 2007a). Refer to Figures 7.4-1a to 7.4-1f for coastal access points and recreational uses in the north central coast study region.



Source: CDFG, 2007a

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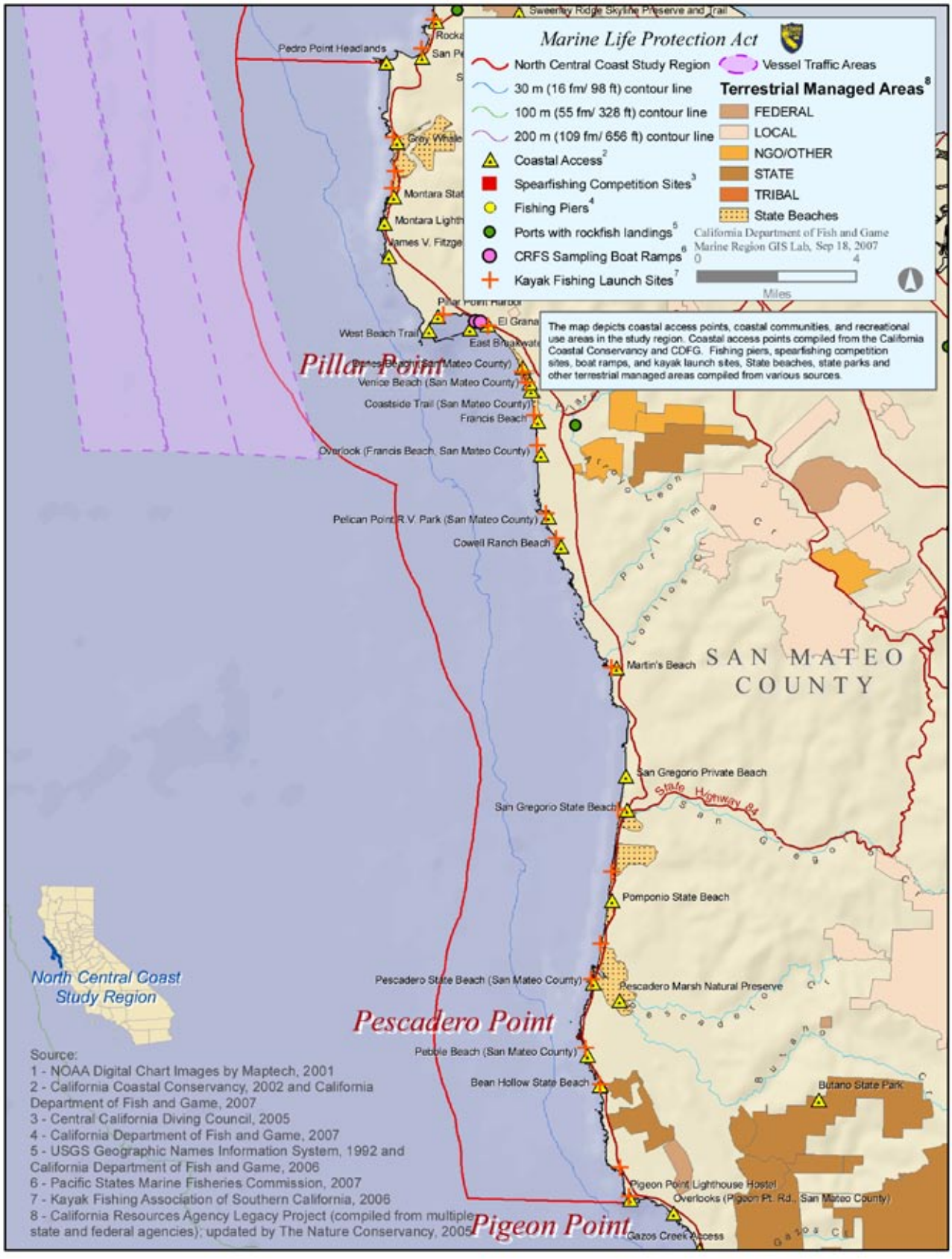
Figure 7.4-1f
Coastal Access and Recreational Use
Subregion 6: Farallon Islands



Source: CDFG, 2007a

Note: Project features and data layers can be viewed online at http://www.marinemap.org/mlpa/

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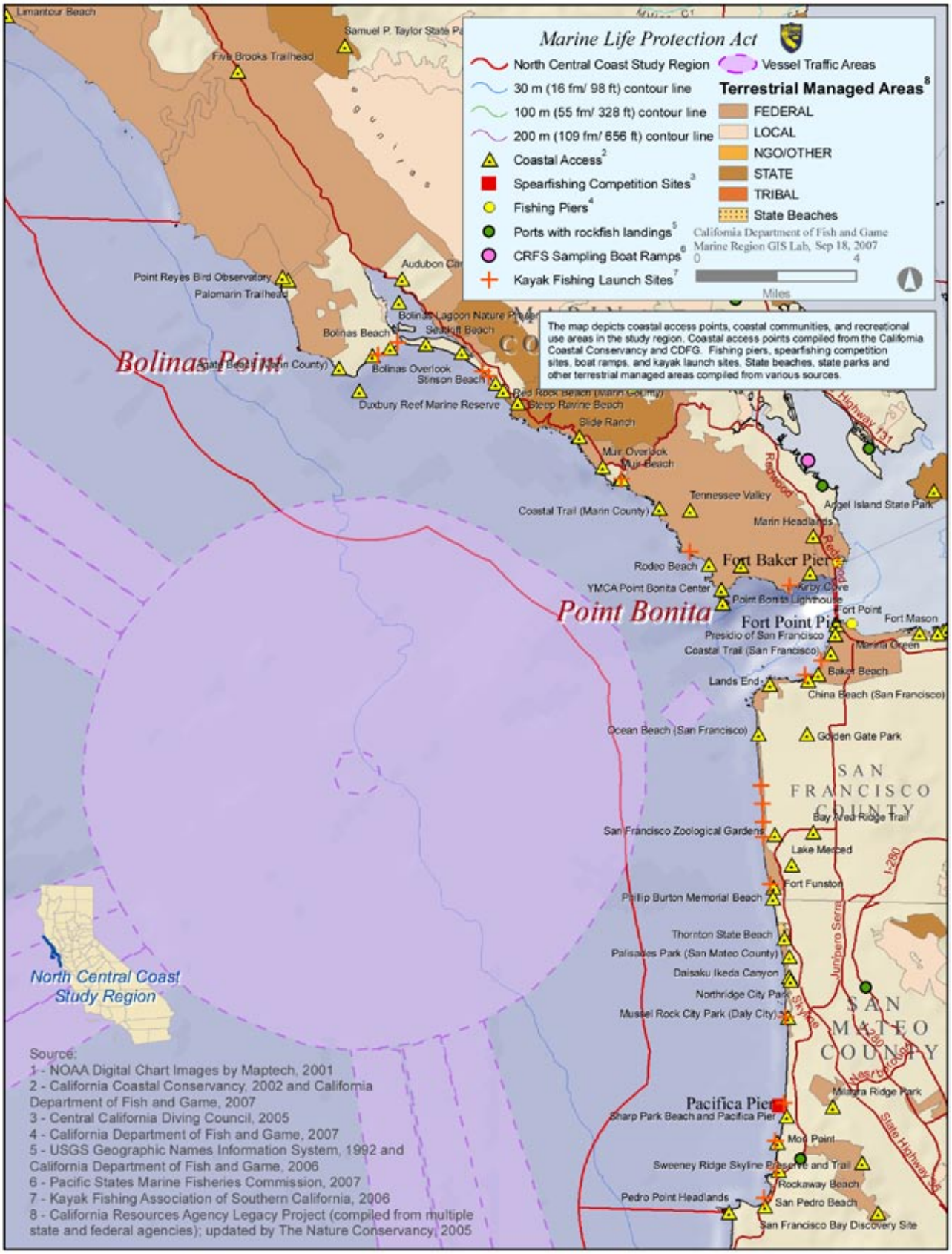
Figure 7.4-1e
Coastal Access and Recreational Use
Subregion 5: Point San Pedro to Pigeon Point



Source: CDFG, 2007a

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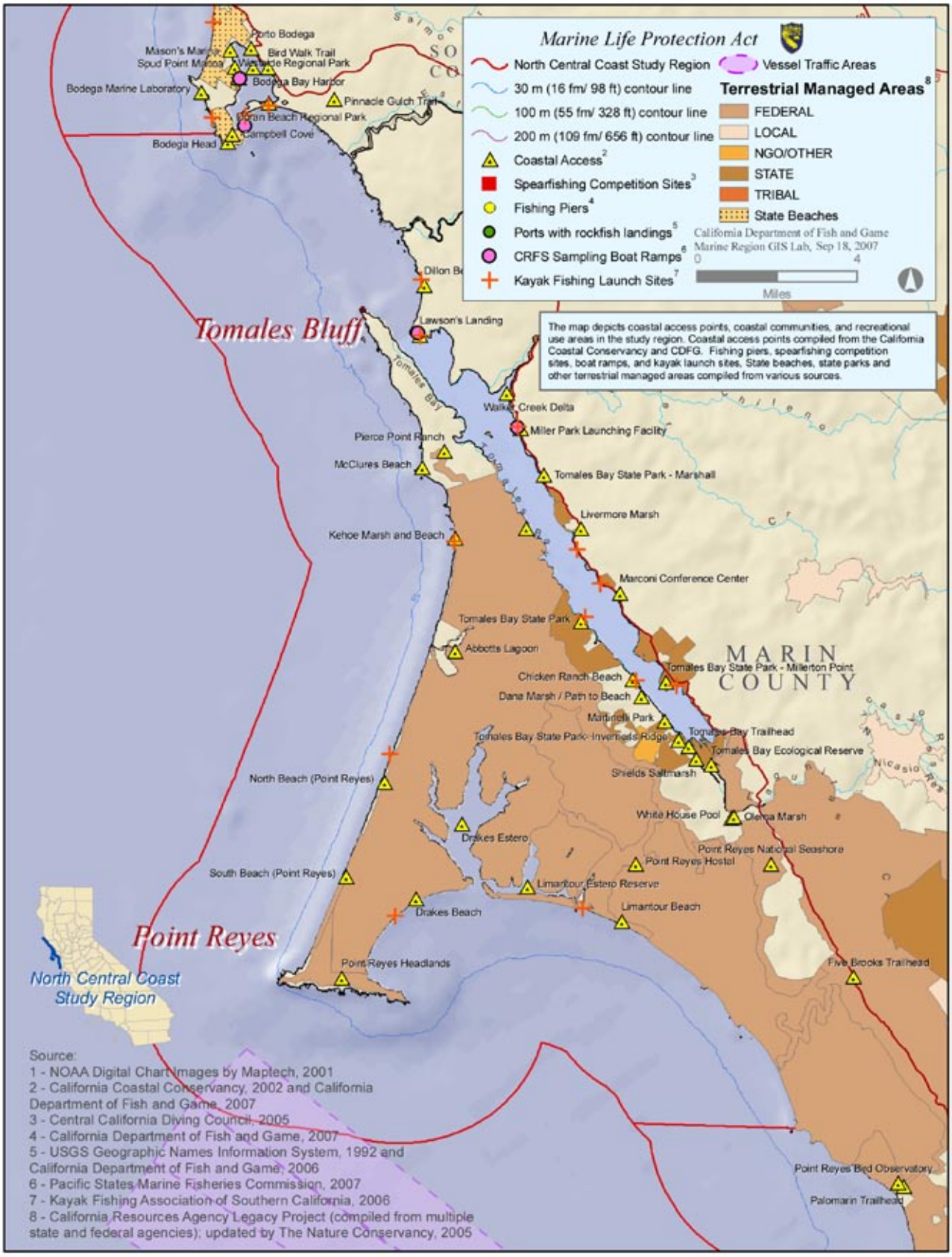
Figure 7.4-1d
Coastal Access and Recreational Use
Subregion 4: Double Point to Point San Pedro



Source: CDFG, 2007a

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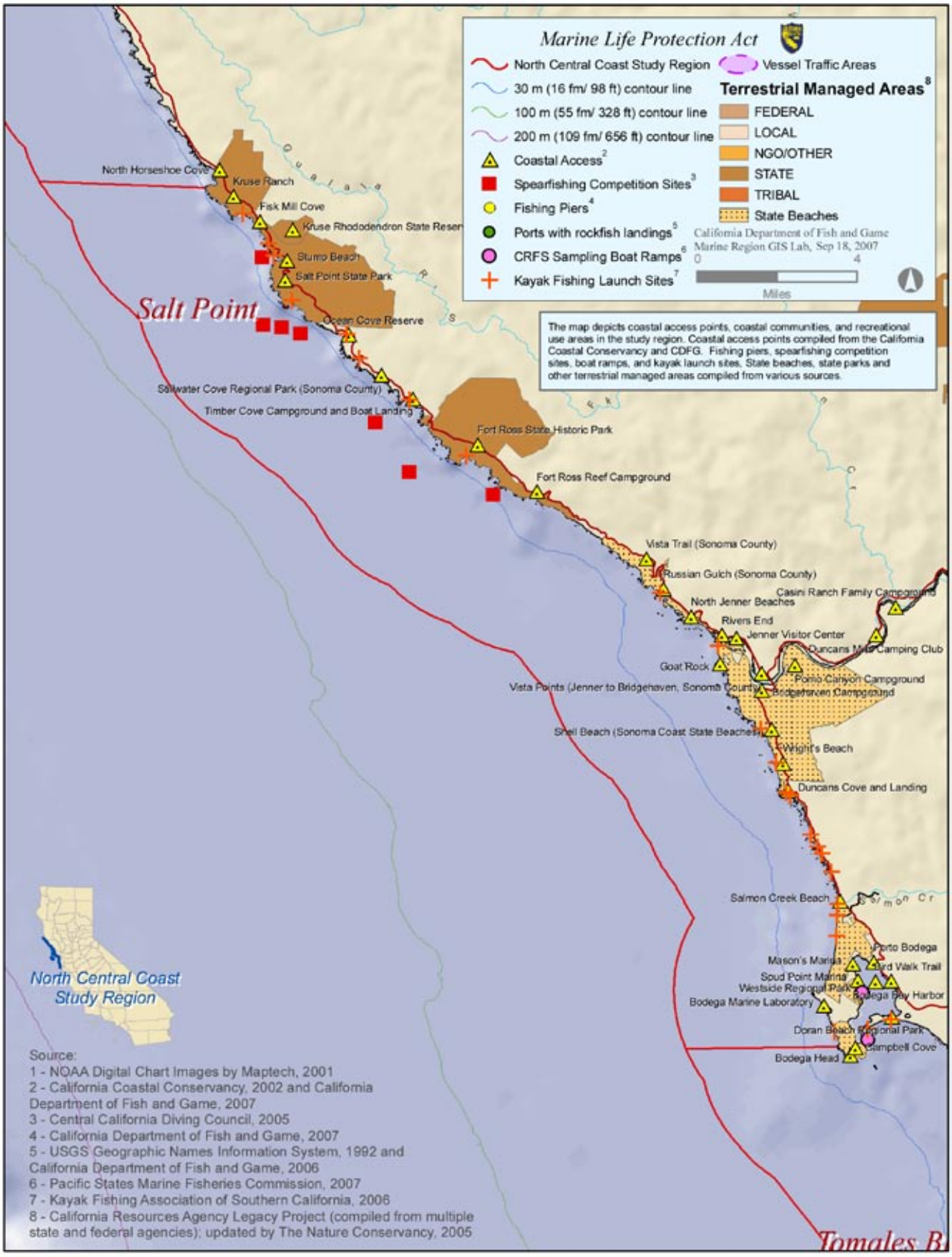
Figure 7.4-1c
Coastal Access and Recreational Use
Subregion 3: Bodega Head to Double Point



Source: CDFG, 2007a

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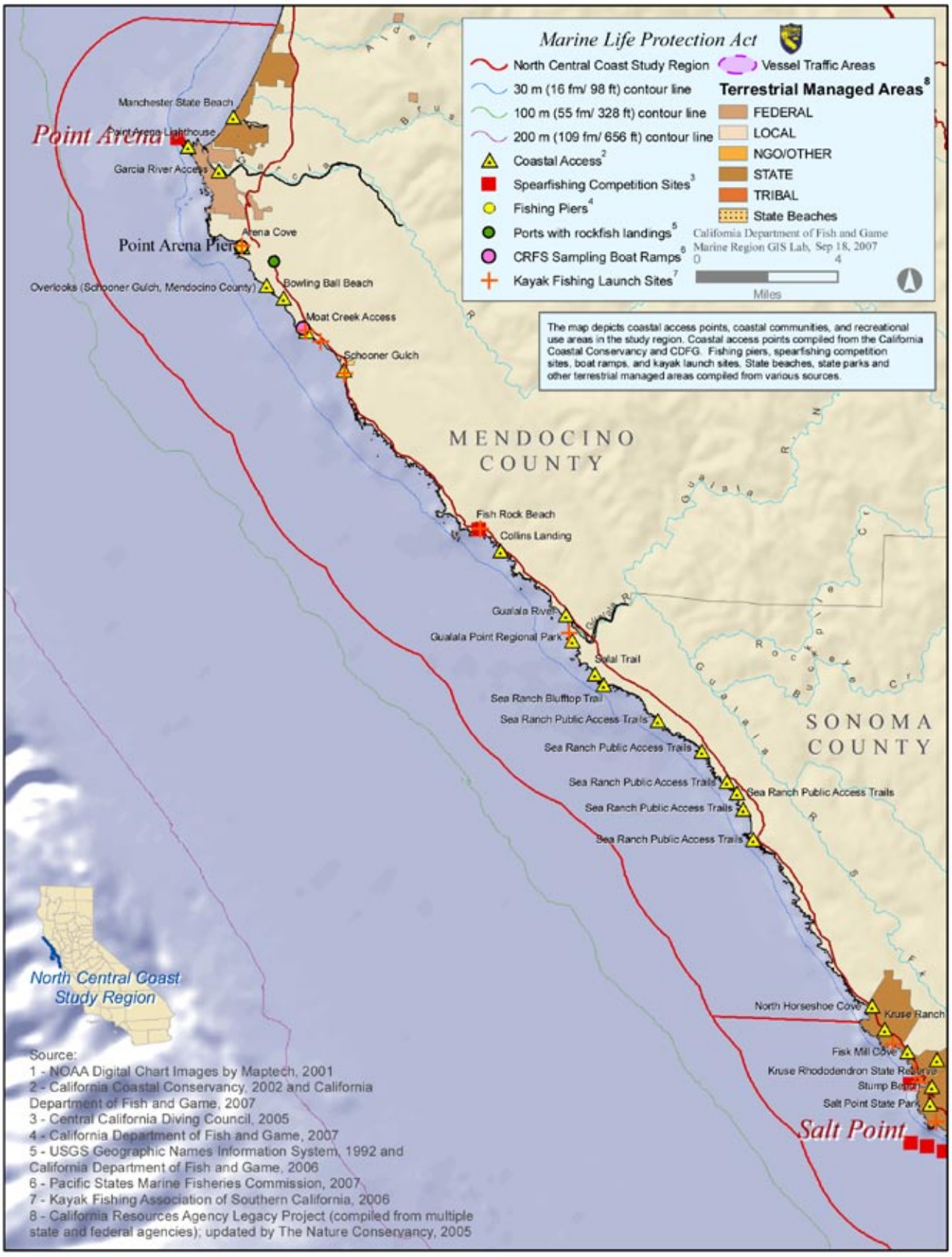
Figure 7.4-1b
Coastal Access and Recreational Use
Subregion 2: Horseshoe Point to Bodega Head



Source: CDFG, 2007a

00447.08 (10/08)

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Figure 7.4-1a
Coastal Access and Recreational Use
Subregion 1: Point Arena to Horseshoe Point

Table 7-10. Participation in Coastal Recreation in California*

Coastal Activity	Estimated Numbers Statewide for California
Visit Beaches	12,598,069
Visit Waterside Besides Beaches	1,500,965
Swimming	8,398,997
Snorkeling	706,998
Scuba Diving	288,023
Surfing	1,114,372
Wind Surfing	82,201
Motorboating	1,549,289
Sailing	1,087,755
Personal Watercraft Use	680,309
Canoeing	190,948
Kayaking	433,209
Rowing	280,265
Water-skiing	265,533
Bird Watching in Saltwater Surroundings	2,581,958
Viewing Other Wildlife in Saltwater Surroundings	2,551,711
Viewing or Photographing Scenery in Saltwater Surroundings	4,175,372
Any Coastal Activity	17,954,215

Source: CDFG 2007a.

Note: * Civilian non-institutionalized population 16 years and older as sampled September 1999. Extrapolated from a sample of 27,854 households.

The north central coast counties that border the study region feature some of the most popular destinations in the state, including the Golden Gate Bridge, Muir Woods National Monument, scenic lighthouses, miles of breathtaking beaches and many scenic towns such as Bodega Bay. The north central coast, with its numerous coastal parks and beaches, attracts visitors to swim, dive, birdwatch, whale-watch, observe tide pools, and hike the magnificent coastal environments.

Coastal Tourism

California is the most visited state in the U.S., and travel and tourism comprise the fourth largest industry and employer in the state. Coast tourism alone generates $9.9 billion in revenue annually (CDFG 2007a). Within the study region, San Francisco County has the highest travel spending, varying between $6.6 and $9.2 billion between 1994 and 2004.

The counties within the study region boast the first, fourth and fifth most popular national parks in the state, including the Golden Gate National Recreation Area, Point Reyes National Seashore, and the Fort Point National Historic Site. In terms of state parks, the Sonoma Coast State Beach is overwhelmingly the most popular state park adjacent to the shore within the study region, and is the third most visited state park in the entire state (Table 7-11).

Table 7-11. Ten Most Frequently Visited California State Parks Adjacent to the Shore in the Study Region

Park Name	County	Total Attendance (Fiscal Year 2004/2005)
Sonoma Coast State Beach	Sonoma	3,059,141
Half Moon Bay State Beach	San Mateo	838,872
Mt. Tamalpais State Park	Marin	411,907
San Gregorio State Beach	San Mateo	392,582
Pescadero State Beach	San Mateo	383,480
Bean Hollow State Beach	San Mateo	284,763
Salt Point State Park	Sonoma	281,983
Pomponio State Beach	San Mateo	184,317
Fort Ross State Historic Park	Sonoma	135,596
Ano Nuevo State Reserve	San Mateo	126,816

Source: CDFG 2007a.

Recreational Fishing

Recreational fishing is a major source of income for the tourism and recreation sector in the north central coast study region. The main boat-based modes of fishing include commercial passenger fishing vessels (CPFVs), private and rental skiffs, and kayaks (angling, diving or free diving). Shore based modes of recreation fishing include beach and bank fishing, fishing from manmade structures, poke-poling, free-diving and shore picking and spear fishing.

Primary target species for recreation fishing in the study region include Chinook salmon, rockfishes/lingcod/kelp greenling, California halibut, sanddabs and albacore. Additional

effort (excluding divers) is directed towards the recreation harvest of Dungeness crab using traps, often in combination with trips for other target species. Recreation fishing is described in more detail on Chapter 4 (Consumptive Uses and Socioeconomic Considerations) of this EIR.

Free-Diving and Shore Picking—Abalone

Free-diving and shore picking include anglers harvesting red abalone from rocky intertidal and subtidal zones (north of the Golden Gate Bridge). Free-divers enter the water from skiffs, kayaks, or shore and are prohibited from using Scuba or “Hookah” equipment to harvest red abalone. Anglers also harvest red abalone by wading out into the shallow rocky intertidal areas at low ocean tides and pick abalone out of the rocks and crevices. Important sites include Fort Ross, Fort Ross Reef Camp, Salt Point, Sea Ranch, Arena Cove, Point Reyes, Tomales Point and Bodega Head. However, during abalone season nearly every accessible cove in Sonoma and Mendocino counties, where abalone effort is greatest, may experience harvesting.

The abalone report card system generates data that provide both catch quantities and an approximate geographic distribution of the abalone catch. Table 7-12 lists the abalone report card landing sites and the annual average of estimated landings for 2002–2006.

Table 7-12. Abalone Report Card Landing Sites and Associated Average Annual Landings

Ref #	Report Card Site	Annual Average for 2002–2006
1	Point Arena Lighthouse*	8,317
2	Arena Cove	10,528
3	Moat Creek	6,801
4	Schooner Gulch	613
5	Saunders Landing	1,212
6	Anchor Bay	5,443
7	Robinson Pt	986
8	Gualala Point	1,047
9	Sea Ranch	12,610
10	Black Point	227
11	Stewarts Point	1,974
12	Rocky Point	459
13	Horseshoe Cove	1,823
14	Fisk Mill Cove	7,784
15	Salt Point	10,512
16	Ocean Cove	6,191
17	Stillwater Cove	3,858
18	Timber Cove	8,660
19	Fort Ross and Reef Camp	37,386
20	Jenner	2,350
21	Salmon Creek	1,032
22	Bodega Head	1,282
23	Tomales Point	2,515
24	Point Reyes	616
	Total	134,186

Source: CDFG 2008b.

* The Point Arena Lighthouse report card landing site includes data from Stornetta Ranch which opened to public access in 2004. As a result of recent increase of effort at this site, averages from 2002–2003 and 2005-2006 are reported, however data from 2004 is excluded because the area opened part way through the abalone season.

Recreational Beach Use

The study region encompasses numerous beaches. The Point Reyes National Seashore and the Golden Gate National Recreation Area have many beaches that are visited by the public, with Ocean Beach being the most popular. Other heavily visited beaches include Rodeo Lagoon Beach, Baker Beach and Stinson Beach of the Golden

Gate National Recreation Area, the RCA Beach, Limantour Beach, Drakes Beach and the Great Beach of Point Reyes National Seashore.

The north central coast's approximately 367.6 miles of coastline provide intrinsic natural and aesthetic values as well as recreational opportunities for its users and great economic benefits to the local, regional and state economies. In 1998, California's beaches statewide generated $14 billion in direct revenue, $2.6 billion in federal tax revenue, and 883,000 jobs (King 1999). Revenues at state beaches in the study region from user fees and concessions were approximately $2.5 million during the 2004/2005 fiscal year (Table 7-13) (CDFG 2007a).

Table 7-13. California State Park Revenue for Parks Located Adjacent to Shore in North Coast Study Region 2004/2005

California State Park	County	Total Revenue Fiscal Year 2004/2005
Half Moon Bay State Beach	San Mateo	$605,049
Sonoma Coast State Beach	Sonoma	$578,847
Ano Nuevo State Reserve	San Mateo	$245,670
Salt Point State Park	Sonoma	$230,038
San Gregorio State Beach	San Mateo	$144,874
Fort Ross State Historic Park	Sonoma	$127,539
Tomales Bay State Park	Marin	$69,850
Manchester State Park	Mendocino	$47,221
Pomponio State Park	San Mateo	$27,939
Pescadero State Beach	San Mateo	$4,356
Gray Whale Cove State Beach	San Mateo	$446
Bean Hollow State Beach	San Mateo	$0
Montara State Beach	San Mateo	$0
Schooner Gulch State Beach	Mendocino	$0
Pigeon Point Lighthouse State Historic Park	San Mateo	$0
Marconi Conference Center State Historic Park	Marin	$0
Point Montara Light Station	San Mateo	$0
Thorton State Beach	San Mateo	$0
Pacifica State Beach	San Mateo	$0
Source: CDFG 2007a.		

Table 7-14 lists some of the beach facilities available by county in the north central coast study region.

Table 7-14. Specific Facilities at Coastal Access Sites

County	Entrance/ Parking Fee	Parking	Restrooms	Showers	Campground	Facilities for the Disabled	Boating Facilities
Mendocino*	1	12	7	2	1	3	1
Sonoma	15	41	36	12	15	18	11
Marin	5	52	42	4	9	22	4
San Francisco	3	16	17	3	2	15	3
San Mateo*	12	40	25	4	4	11	1
Total	36	161	127	25	31	69	20

* Note that facilities are for just the study region and not for the entire county.

Source: California Coastal Access Guide 2003.

Boating

Boating is a popular and economically important pastime in the north central coast study region. In the year 2000, over 4 million people in California were involved in boating related activities, and the contribution of boating to the gross state product was $11 billion in 1995, representing 1.2% of the state economy (CDFG 2007a).

The California Department of Boating and Waterways publishes reports detailing an assessment of boating and boating facilities needs in California, based on regions, two of which encompass the north central coast study region. The CDFG describes the waters around the study region as cold and hazardous, and therefore do not attract many pleasure cruising vessels.

More boats in this region are used for commercial fishing than for recreational activities. However, boat ownership within the north central coast study region was found to be relatively high for its small population with almost 5 boats for 100 people (CDFG 2007a). According to the California Department of Waterways and Boating, the top ten waterways for the study region are the Pacific Ocean, Bodega Bay and Tomales Bay.

The California Recreational Fisheries Survey (CRFS), a cooperative program of the CDFG, the Pacific States Marine Fisheries Commission, and the National Marine Fisheries Service, produces further data on recreational fishing. Table 7-15 summarizes the CRFS survey results of angler boat trip types from January through November 2006 for Bodega Bay and Pillar Point, which are two primary launch ramps that occur within the north central coast study region. Data represent totals for survey days only (approximately 8 days per month, 11 months), not estimated totals for the year (CDFG 2007a).

Table 7-15. Number of Trailered Private and Rental Boats Surveyed by CRFS in the Months January through November 2006

Type of Activity	Number of Counted Vessels			
	Bodega Bay	Pillar Point	Total	Percent of Total
Fishes recreationally for finfish	2,347	1,766	4,113	95.3
Fished recreationally for intervertebrates	26	21	47	1.1
Intended to fish recreationally but no gear in water	6	7	13	0.3
Total recreational fishing	2,379	1,794	4,173	96.7
Fished commercially	19	10	29	0.7
Total Vessels Fishing	**2,398**	**1,804**	**4,202**	**97.3**
Sailing/sightseeing	12	13	25	0.6
Non-consumptive diving	0	0	0	0
Maintenance	5	11	16	0.4
Enforcement (public agency)	1	0	1	0.0
Research (public agency)	4	1	5	0.1
Personalized Watercraft	0	0	0	0
Removing boat from harbor	37	18	55	0.3
Unidentified/Other	0	13	13	2.7
Total Vessels Not Fishing	**59**	**56**	**115**	
Totals All Boats	**2,457**	**1,860**	**4,317**	

Source: CDFG 2007a.

The number of registered boats increased by more than 50% between 1978 and 1991, though it is not known what proportion of boats are used in marine waters. According to the California Department of Motor Vehicles, there are approximately 51,000 registered recreational marine or aquatic vessels in the study region (Table 7-16) (CDFG 2007a).

Table 7-16. Number of Registered Recreational Marine or Aquatic Vessels

County	Number Registered Recreational Vessels
Mendocino	5,231
Sonoma	19,641
Marin	9,338
San Francisco	4,089
San Mateo	12,636

Source: California Department of Motor Vehicles 2006.

There are several marinas and boat launches in the study region, many of which are not sampled through the CRFS program. Some examples of these facilities are listed in Tables 7-17 and 7-18.

Table 7-17. Marinas in or Adjacent to the Study Region

Marina [1,2]	City	County
Spud Point, Porto Bodega, Mason's Marina	Bodega Bay	Sonoma
Golden Hinde Inn and Marina	Inverness	Marin
Marshall Anchorage (Anchorage only)	Marshall	Marin
Pillar Point Harbor, Pillar Point Yacht Club	Princeton-by-the-Sea	San Mateo
Arques Shipyard and Marina, Clipper Yacht Harbor, Horseshoe Harbor & Presidio Yacht Club, Marina Plaza Harbor, Pelican Harbor, Richardson Bay Marina, Sausalito Cruising and Yacht Club, Sausalito Yacht Harbor, Schoonmaker Point Marina, Ayala Cove, San Francisco Yacht Club, Corinthian Yacht Club, Paradise Cay Yacht Harbor	Sausalito/ Tiburon	Marin
Loch Lomond Marina and Yacht Club, Marin Yacht Harbor and Yacht Club, Lowrle Yacht Harbor, San Rafael Yacht Club	San Rafael	Marin
Point San Pablo Yacht Harbor, Brickyard Cove Marina, Channel Marina, Richmond Yacht Harbor, Marina Bay Yacht Harbor, Berkeley Marina, Emeryville City Marina, Emery Cove Marina	Richmond/Berkeley	Alameda
Jack London Marina, Portobello Marina, 5th Ave Marina, North Basin, Embarcadero Cove Marina, Union Point Marina, Marina Village Yacht Harbor, Oakland Yacht Club, Encinal Yacht Club, Fortman Marina and Alameda Yacht Club, Grand Marina, Alameda Marina, Alameda Marina and Island Yacht Club, Ballena Isle Marina and Yacht Club	Oakland	Alameda
Brisbane Marina and Sirra Yacht Club, Oyster Cove Marina, Oyster Point Marina and Yacht Club, Coyote Point Marina and Yacht Club, Bair Island Marina, Pete's Harbor, Redwood City Yacht Harbor and Sequoia Yacht Harbor	South San Francisco to Redwood City	San Mateo
San Francisco Marina, Pier 39 Marina, Pier 38, Treasure Island Marina, South Beach Harbor	San Francisco	San Francisco

Sources: CDFG 2007a.

1. Note that the marinas within San Francisco Bay are located outside of the study region, but that the vessels using these marinas may travel into the study region under the Golden Gate Bridge.

2. This list of marinas in not comprehensive.

Table 7-18. Boat Launch Locations within the Study Region

Boat Launch Locations	City	County
Point Arena	Point Arena	Mendocino
Anchor Bay	Anchor Bay	Mendocino
Ocean Cove	Jenner	Sonoma
Stillwater Cove	North of Fort Ross	Sonoma
Salt Point	Fort Ross Area	Sonoma
Doran Park	Bodega Bay	Sonoma
West Side/Porto Bodega	Bodega	Sonoma
Timber Cove	Jenner	Sonoma
Lawson's Landing	Dillon Beach	Marin
Miller's Park	3 miles north of Marshall	Marin
Marconi Cove	Marshall	Marin
Golden Hinde Inn and Marina	Inverness	Marin
Pillar Point Harbor	Princeton-by-the-Sea	San Mateo
Keating Boat Launch	Pacifica	San Mateo

Source: CDFG 2007a.

Recreational Scuba Diving

Scuba diving is a popular activity in the north central coast study region. The majority of scuba diving sites are found in Sonoma and Mendocino counties, and it is a recreational activity that generates a significant amount of revenue. California, which comprises an estimated 12% total of the national revenue generated from recreational scuba diving, generates approximately $180 million annuals. Diving also fosters related business, such as underwater photography and art galleries. There are at least thirteen dive shops in the coastal counties in the north central coast study region. Table 7-19 details some of the scuba diving sites found in the study region.

Table 7-19. Scuba Diving Sites in the Study Region

SCUBA Diving Site	County	SCUBA Diving Site	County
Arena Rock	Mendocino	Timber Cove	Sonoma
Arena Cove	Mendocino	Windmere Point, Lomer Gulch	Sonoma
Arena Bay	Mendocino	Fort Ross Cove	Sonoma
Collins Landing	Mendocino	Fort Ross Reef	Sonoma
Stewarts Point	Sonoma	Red Barn, Pedotti's Ranch, Sheep Ranch	Sonoma
Richardson	Sonoma	Russian Gulch	Sonoma
Horseshoe Cove	Sonoma	Tomales Point	Marin
Fisk Mill Cove	Sonoma	Abalone Point/Double Point	Marin
Stump Beach	Sonoma	San Agustin	Marin
Gerste Cove	Sonoma	Noonday Rock	San Francisco
Gerstle Pinnacle	Sonoma	Isle of St. James	San Francisco
Ocean Cove	Sonoma	Middle Farallon	San Francisco
Stillwater Cove	Sonoma	Henry Bergh	San Francisco
Cemetary Reef	Sonoma		

Source: CDFG 2007a.

Other Recreational Activities

More than a half-million people participated in some form of kayaking in California in 1999 and 2.5 million people participated in wildlife viewing. There are eleven kayak rental shops in the study region; the majority are found in Marin, Sonoma, and San Mateo counties. Pinnipeds, cetaceans, seabirds, and shorebirds can be viewed from numerous locations. While these areas have not yet been mapped, many prominent points of land can be used to view whales and other cetaceans, while estuaries in the study region are often locations used for viewing sea and shore birds.

Surfing

Approximately 1.1 million surfers live in California and surf at popular spots along the coast, many of which are located within the study region. Table 7-20 lists some surf spots in the region.

Table 7-20. Surfing Spots in the North Central Coast Study Area

Location in Region	Name of Surfing Location
Mendocino County south of Alder Creek and Sonoma County	Manchester, Point Arena, Salmon Creek, Black Point Beach, Duran Beach, Russian, Rivermouth
Marin County	Dillon Beach, Bolinas, Drakes Beach, Point Reyes (north), Stinson Beach, Point Reyes (south), Rodeo Beach
San Francisco County	Potato Patch, Fort Point, Ocean Beach
San Mateo County north of Pigeon Point	Sharp Park, Pedro Point, Mavericks, Martin's Beach, Rockaway, Montara, Princeton Jetty, Tunitas Creek, Linda Mar, Ross' Cove, Half Moon Bay, Pescadero

Source: CDFG 2007a.

Lighthouses

The area within the study region has a rich maritime heritage including several lighthouses which are still active today (Table 7-21). These lighthouses not only serve as navigational aids, but are also popular tourist destinations.

Table 7-21. Active Lighthouses in the North Central Coast Study Region

Active Lighthouse	Closest city	County
Point Arena	Point Arena	Mendocino
Point Reyes	Inverness	Marin
Point Bonita	Sausalito	Marin
Point Diablo	Sausalito	Marin
Farallon Island	San Francisco	San Francisco
Mile Rock Lighthouse	San Francisco	San Francisco
Point Montara	Montara	San Mateo
Pigeon Point	Pescadero	San Mateo

Source: CDFG 2007a.

7.4.2. Regulatory Framework

Coastal and open water jurisdictions, resource-based agencies, and commissions are described in Chapter 1 of this EIR. Regulations pertaining specifically to recreational resources are described further below.

7.4.2.1. National Park Service

The NPS was established to conserve the natural scenery, wildlife, and natural and historic objects of the area. In addition, the NPS provides for the management of these resources for future generations. The agency manages national parks, monuments, historic sites, and recreation areas by developing and implementing park management plans. While their responsibilities are not specifically ocean or coastal oriented, NPS manages four coastal and recreational parks in California.

7.4.2.2. Bureau of Land Management

The U.S. Department of the Interior, Bureau of Land Management (BLM) administers 262 million surface acres of America's public lands, located primarily in 12 western states. The BLM was established to sustain the health, diversity, and productivity of public lands under its jurisdiction for the use and enjoyment of present and future generations. Among other holdings, BLM manages lands within the National Landscape Conservation System through development and implementation of resource management plans. While most of its lands are not located along the coast, BLM does manage several on-shore coastal properties and the California Coastal National Monument (CCNM), which encompasses more than 20,000 offshore rocks and small islands above mean high tide within 12 nm of the coast. To effectively manage these lands, BLM has formed numerous partnerships with federal, state and local entities, including the CDFG and the California Department of Parks and Recreation. BLM's management goals for the CCNM emphasize protection of the biological, geological, aesthetic, and cultural resources of the rocks and islands.

7.4.3. Impact Analysis

7.4.3.1. Methodology

Effects to recreational facilities were assessed by evaluating the potential change in use patterns resulting from the proposed MPA network component relative to known "hot spots" [4] for non-consumptive recreational users. These potential changes were evaluated for their potential to impact existing recreational facilities and infrastructure.

7.4.3.2. Criteria for Determining Significance

Based on Appendix G of the State CEQA Guidelines and professional judgment, the project would have a significant impact on recreational resources if it:

- Would increase the use of coastal waters with MPAs or other recreational facilities such that substantial physical deterioration of coastal waters or other recreational facilities would occur or be accelerated.

[4] *Hot Spots* refer to the most popular locations for various recreational uses

- Would include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse effect on the environment.
- Would decrease recreational opportunities.

7.4.3.3. Environmental Impacts

Impact REC-1: Physical Deterioration of Coastal Waters or Other Recreational Facilities

As discussed in the environmental setting, hot spots for non-consumptive recreational uses in the study region include miles of heavily visited coastline and parks such as the Golden Gate National Recreation Area, Sonoma Coast State Beach, and Half Moon Bay State Beach, extensive boating facilities, specifically Pillar Point and Bodega Bay Harbor, surf spots such as Dillon Beach, Bolinas and Mavericks, and tidepooling sites such as Fitzgerald Marine Reserve and Mussel Point. Implementation of the Proposed Project or its alternatives could result in potential impacts to coastal waters and beaches at these hot spots, including related recreational facilities such as piers, boat launches, parking lots, restrooms if such implementation results in a shift in users or a substantial shift in users to new locations lacking sufficient recreational facilities and infrastructure.

Two factors that influence site selection by non-consumptive divers, kayakers, and wildlife viewers is proximity to fishing vessels and distance to site. The more fishing vessels in an area, and/or the farther away a site, the less likely that a site will be selected for each given activity. MPAs will prohibit or reduce the level of fishing allowed in the MPAs, resulting in reduced fishing vessel traffic and potentially encouraging more recreational users to utilize MPAs that are located in close proximity to currently utilized recreation sites. This redistribution may lead to increased use of recreational facilities including beaches, parking lots, restroom, and other amenities that are located adjacent or near to MPAs.

Proposed Project: No Impact

Fitzgerald Marine Research, an existing SMP, will be encompassed by Montara SMP and Pillar Point SMCA. The same amount of coastline will be preserved in this park. Since the creation of new MPA's is not expanding the amount of physical coastline in this area, no additional facilities should be required here. New protection will be created in the Point Reyes area in the Point Reyes SMCA, Drakes Estero SMCA and Point Reyes SMR. As it is contained within a National Recreation Area, there are extensive facilities and access points throughout the area.

Salt Point State Beach and Stillwater Cove Regional Park are both located within the Salt Point SMP and Gerstle Cove SMR. These are popular areas for visiting the beach as well as abalone catch, and there are many facilities already in place at both locations for visitors. These proposed MPA's are in a dense area of abalone catch, with Fisk Mill Cove and Fort Ross & Reef Camp just to the north and south, respectively.

Though it would require a slight shift in recreation within the MPA, many recreation areas are located on either side.

The existing Manchester and Arena Rock SMR and SMCA, a hot spot in Mendocino County, will overlap with the Point Arena SMR and SMCA. These sites are located in a heavily visited area, with the Point Arena Lighthouse and Manchester Beach in close proximity. While Point Arena is a hot spot for recreational abalone catch, several other heavily visited sites for this activity are within close proximity, including Schooner Gulch approximately 4 miles south and Anchor Bay approximately 10 miles south. Sonoma County also has many popular areas such as Sea Ranch and Timber Cove. Additionally, the southern Mendocino County coast is one of the least monitored or patrolled sections in the study area. Pushing recreation north near Fort Bragg or south into Sonoma County would allow for greater enforcement and safety, as there are greater enforcement resources in this area.

Based on these findings, the Proposed Project would neither cause substantial physical deterioration of coastal waters or other recreational facilities to occur or be accelerated, nor require the construction or expansion of recreational, scientific or educational facilities.

Mitigation—No mitigation is required because there would be no impact.

Alternative 1: No Impact

The Alternative 1 network component of MPAs in relationship to known hot-spots would be similar to that of the Proposed Project. South of the San Francisco Bridge, the Montara SMCA and Fitzgerald SMR would remain the same, with a 1000' special closure in the northern section of the Montara SMCA. Moving north of the Bridge, the Duxbury SMP would be expanded to the Duxbury Reef SMCA and Double Point SMCA. The Russian River SMCA would be slightly decreased, as would be Stewarts Point SMR, which would be called the Rocky Point to Horseshoe Point SMR. Delmar Landing would remain the same size, but would be designated as a SMP instead of an SMR.

Based on these findings, Alternative 1 would neither cause substantial physical deterioration of coastal waters or other recreational facilities to occur or be accelerated, nor require the construction or expansion of recreational, scientific or educational facilities.

Mitigation—No mitigation is required because there would be no impact.

Alternative 2: No Impact

The Alternative 2 network component of MPAs in relationship to known hot spots would be similar to that of the Proposed Project. South of the Golden Gate Bridge, Pillar Point SMCA would be slightly smaller, and the special closure in Montara SMR would be 300 ft. Moving north, the Russian River SMCA would be reduced, and called the

Russian River Estuary SMRMA. Gerstle Cove SMR would also be reduced. South of Sea Ranch, Stewarts Point SMR would be broken up into Black Point SMCA and Black Point SMR. Del Mar Landing and Saunders Reef SMCA would not be part of the network. In all instances, Alternative 2 would not result in a substantially changed usage pattern or increased demand on existing recreational facilities.

Based on these findings, Alternative 2 would neither cause substantial physical deterioration of coastal waters or other recreational facilities to occur or be accelerated, nor require the construction or expansion of recreational, scientific or educational facilities.

Mitigation—No mitigation is required because there would be no impact.

Alternative 3: No Impact

The Alternative 3 network component of MPAs in relationship to known hot spots would be similar to that of the Proposed Project. South of San Francisco, the Montara SMR and Pillar Point SMCA would be moved north slightly, and be called the Devils Slide SMCA and Fitzgerald SMR, with a special closure in the Devils Slide SMCA. South of that, the San Gregorio SMR would also be established, with a 300 ft special closure. The areas of protection within the Farallons would remain the same, with three additional special closures consisting of two 300 ft and one 1000 ft. Moving into the Marin Coast, the Agate Beach Intertidal SMCA and Double Point SMCA would be established with three 300 ft special closures in that area. Protection in the Point Reyes area would remain the same, with one special closure in the Point Reyes SMCA. At Tomales Bay, the Tomales Bay SMR would also be established. Around Bodega Head, the Bodega SMCA and Bodega SMR would also be expanded.

Based on these findings, Alternative 3 would neither cause substantial physical deterioration of coastal waters or other recreational facilities to occur or be accelerated, nor require the construction or expansion of recreational, scientific or educational facilities.

Mitigation—No mitigation is required because there would be no impact.

Impact REC-2: Effects on Recreational Opportunities

Proposed Project: Less than Significant Impact

For the most part, impacts associated with implementation of the proposed MPA network component would be beneficial for non-consumptive recreational users and the scientific and educational community, as these uses would not be prohibited or reduced. Implementation of the Proposed Project would result in an increase in diversity of wildlife, and abundance of fish and invertebrates; components of a fulfilling recreational experience.

Implementation of the MPA network component would place restrictions on recreational fishing including some no-take areas or areas restricting take of certain species; but recreational fishermen would still have many options remaining available to them inside certain MPAs and outside of MPAs for a fulfilling recreational experience. While there may be some recreational fishing high use areas located within proposed no-take MPAs, on the whole, the Proposed Project avoids many desired locations identified in the CRFS (CDFG 2007a). It is much more likely that recreational fishermen will adjust their transit to destinations equally easy to access versus electing to transit longer distances and travel times for a comparable fishing experience. Therefore, the impact to recreational fishing activities would be less than significant.

Mitigation—No mitigation is required because impacts are not significant.

Alternative 1: Less than Significant Impact

Potential effects associated with Alternative 1 would be the similar to those described above for the Proposed Project, though Alternative 1 would result in slightly fewer no-take areas or areas with restricted recreational fishing. Therefore, Alternative 1 would result in a less than significant impact.

Mitigation—No mitigation is required because impacts are not significant.

Alternative 2: Less than Significant Impact

Potential effects associated with Alternative 2 would be the comparable to those described above for the Proposed Project; though Alternative 2 would result in slightly more no-take areas or areas with restricted recreational fishing. Therefore, Alternative 2 would result in a less than significant impact.

Mitigation—No mitigation is required because impacts are not significant.

Alternative 3: Less than Significant Impact

Potential effects associated with Alternative 3 would be the comparable to those described above for the Proposed Project; though Alternative 3 would result in slightly more no-take areas or areas with restricted recreational fishing. Therefore, Alternative 3 would result in a less than significant impact.

Mitigation—No mitigation is required because impacts are not significant.

7.5. Research and Education

This section describes the existing setting and potential research and education impacts of the Proposed Project and its alternatives. Specifically, it describes existing conditions related to research and educational opportunities and facilities, and summarizes the overall federal, state, and regional/local regulatory framework for research and education resources that would affect implementation of an MPA network

component. This section also analyzes the potential impacts of the Proposed Project on research and educational resources and identifies mitigation measures to address significant impacts, as appropriate.

Academic institutions, government agencies, and non-governmental organizations in the San Francisco Bay area and surrounding region contribute to marine research, education and public outreach in the north central coast study region.

7.5.1. Environmental Setting

7.5.1.1. Major Institutions in the North Central Coast Study Region

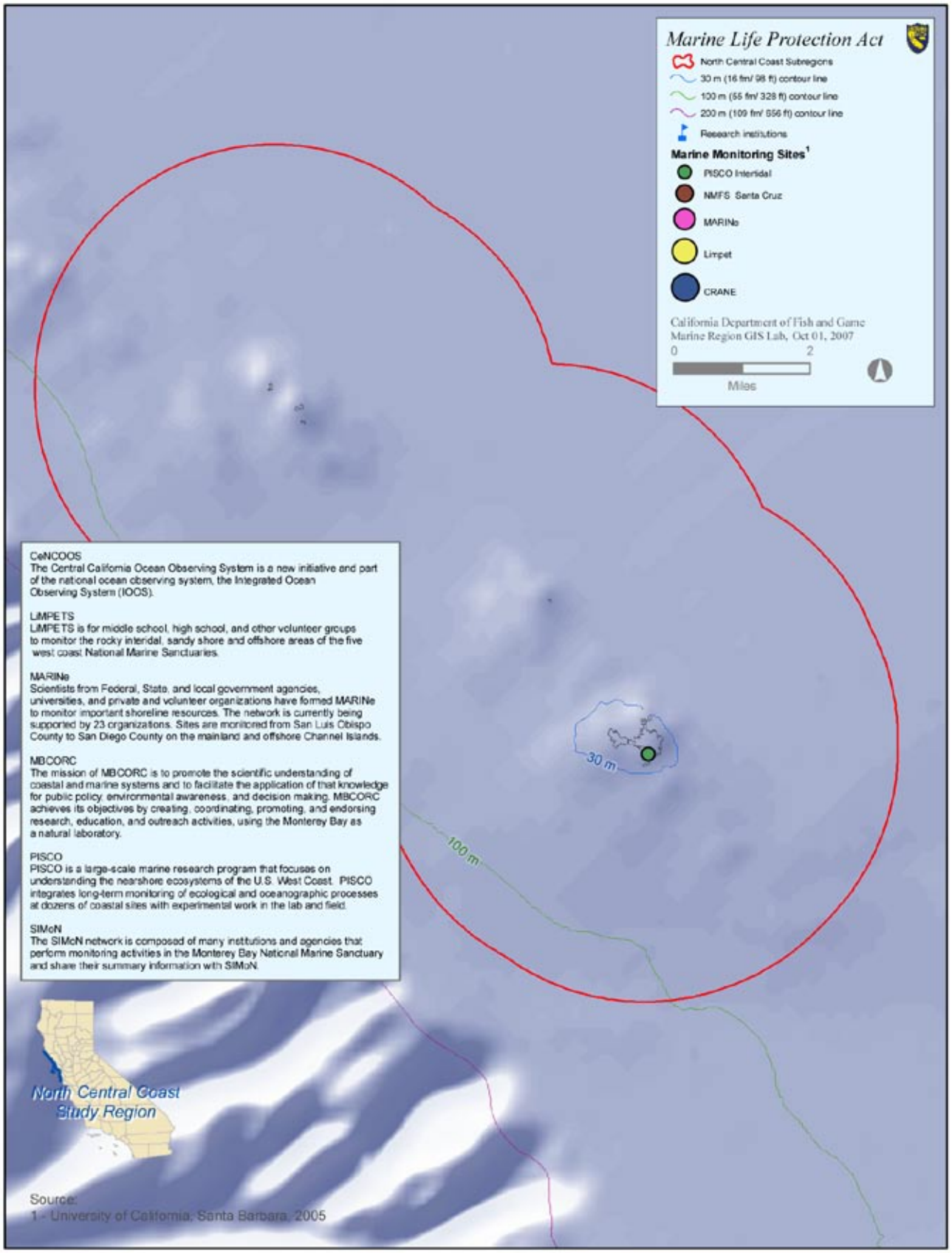
Major academic institutions that conduct research in coast and marine ecosystems in north central California include University of California, Berkeley, San Francisco State University, University of California, Davis, through its support for the Bodega Marine Lab. Finally, Stanford University and University of California, Santa Cruz, support research through the Partnership for Interdisciplinary Studies of Coastal Oceans (PISCO), whose intertidal and subtidal monitoring extends north through the region.

There are many marine laboratories in the north central coast study region, including Bodega Marine Lab, Romberg Tiburon Center, Point Reyes Bird Observatory (PRBO) Conservation Science, the Marine Mammal Center, Tomales Bay Marine Station, Point Reyes National Seashore, and Southwest Fisheries Science Center. Furthermore, several government agencies also contribute to research in the north central coast study region as well, including CDFG, California Sea Grant, Cordell Bank, Gulf of the Farallons and Monterey Bay National Marine Sanctuaries, San Francisco Bay National Estuarine Research Reserve, the National Parks Service and US Geological Survey. Some non-governmental organizations also contribute to research in the north central coast study region (CDFG 2007a).

7.5.1.2. Scientific Research and Collecting

Scientific research within the north central coast study region is diverse, ranging from intertidal ecology to studies of the pelagic zone and deep ocean. Much of the research in the north central coast study region is concentrated around marine laboratories (CDFG 2007a). Refer to Figures 7.5-1a to 7.5-1f for the location of marine monitoring sites.

The following are some of the primary research centers in the north central coast study region. The Bodega Marine Laboratory is affiliated with the University of California, Davis. Research includes marine ecology, coastal/nearshore oceanography, environmental toxicology biochemistry, molecular biology, physiology and pathology.



Source: CDFG, 2007a

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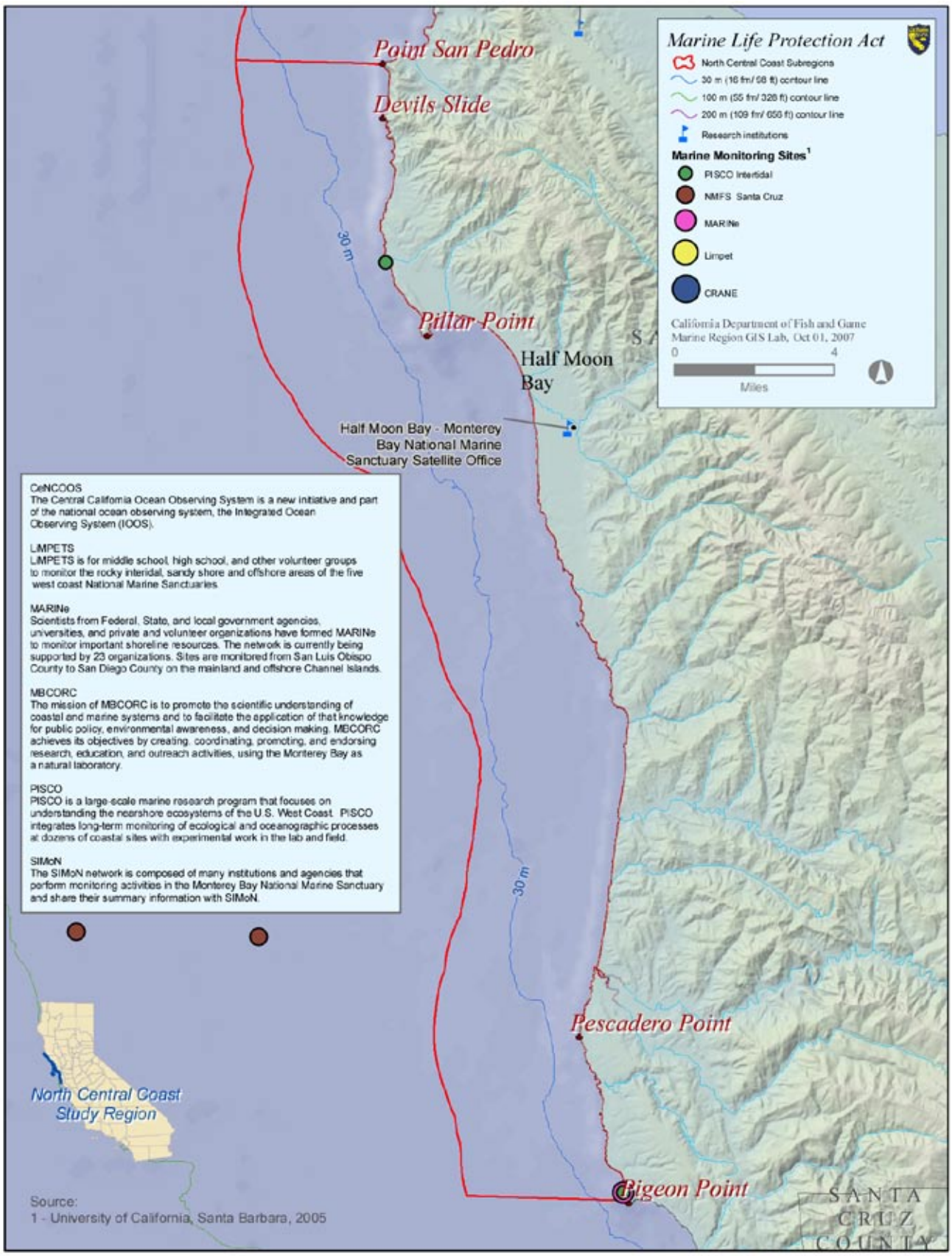
Figure 7.5-1f
Research, Education and Monitoring
Subregion 6: Farallon Islands



Source: CDFG, 2007a

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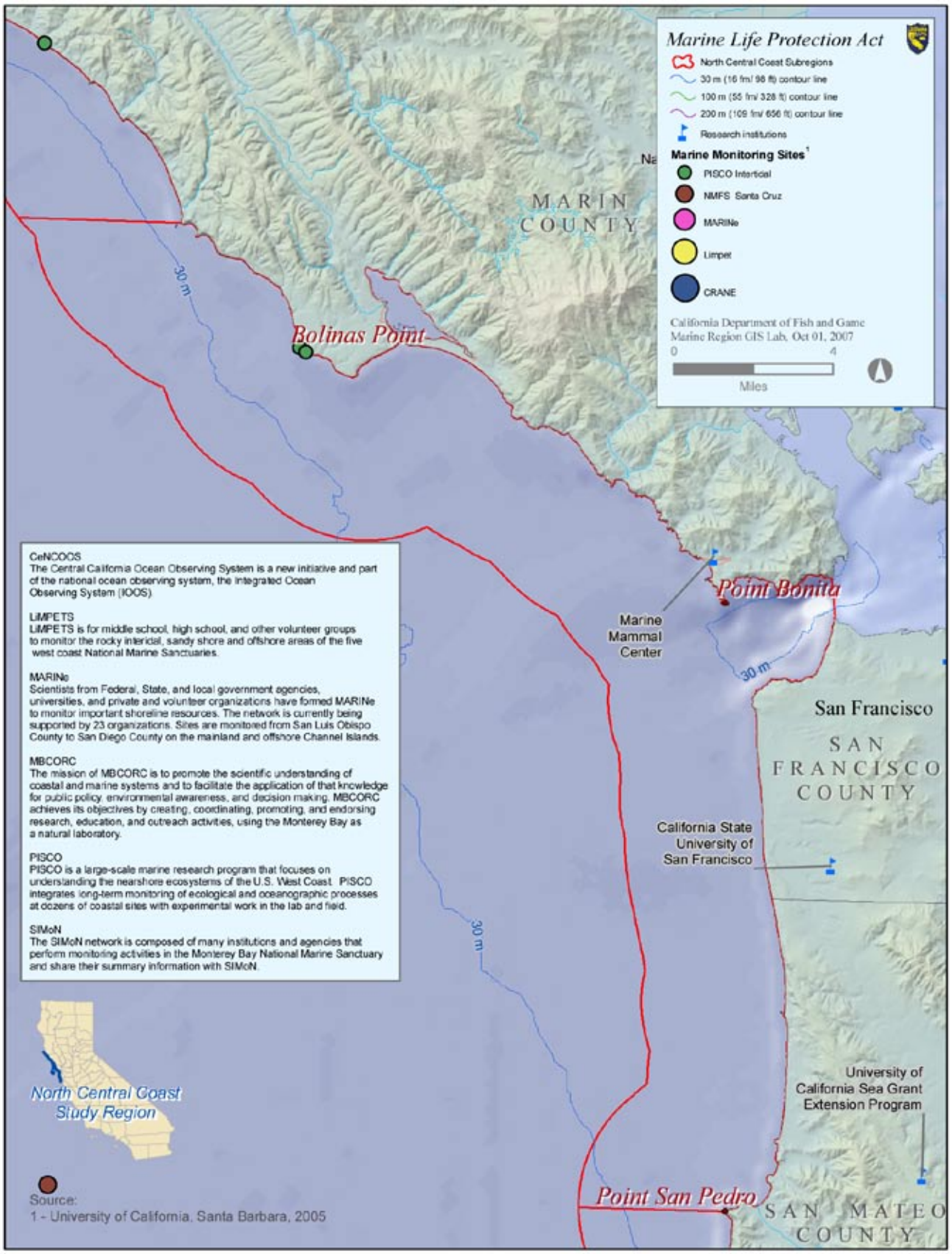
Figure 7.5-1e
Research, Education and Monitoring
Subregion 5: Point San Pedro to Pigeon Point



Source: CDFG, 2007a

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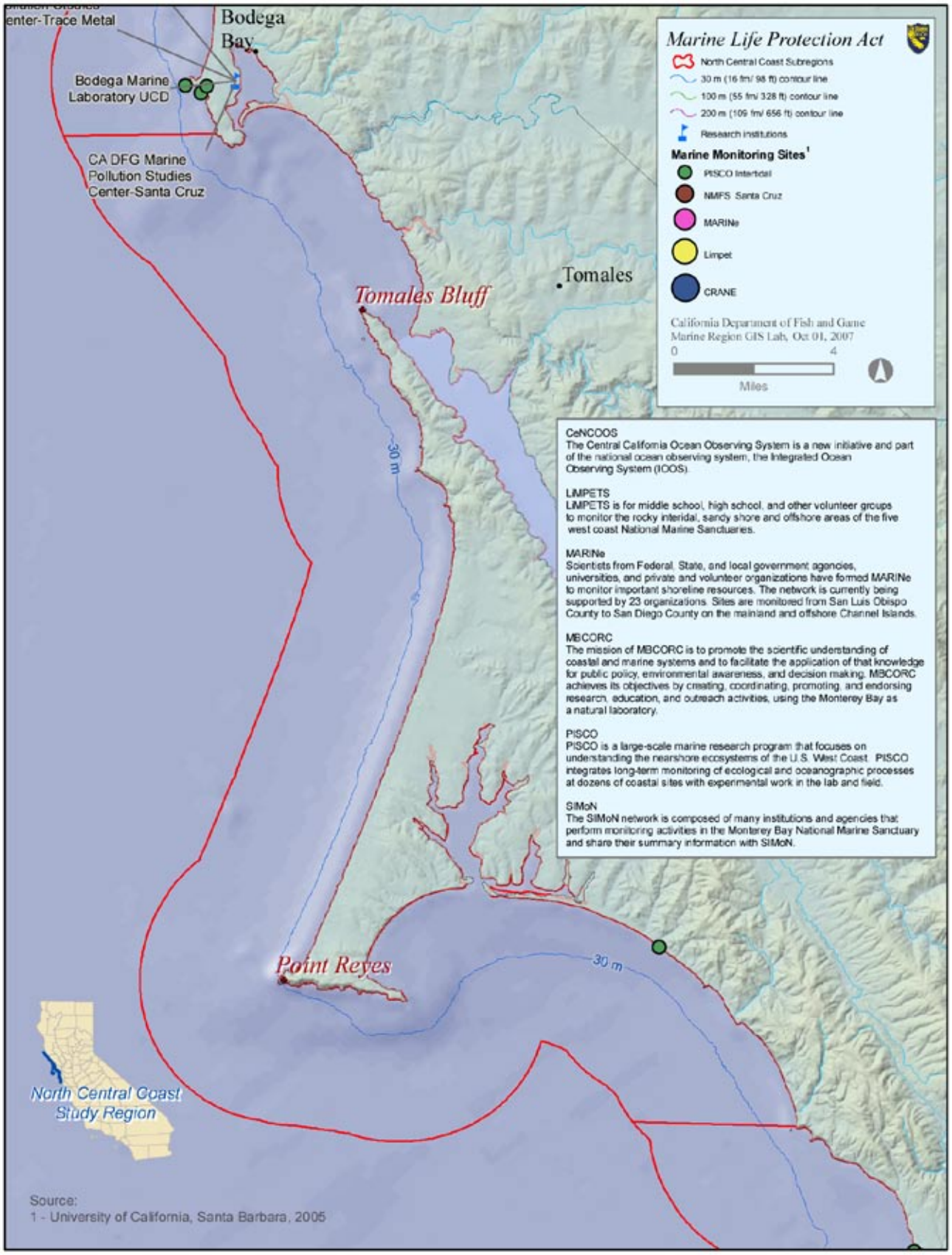
Figure 7.5-1d
Research, Education and Monitoring
Subregion 4: Double Point to Point San Pedro



Source: CDFG, 2007a

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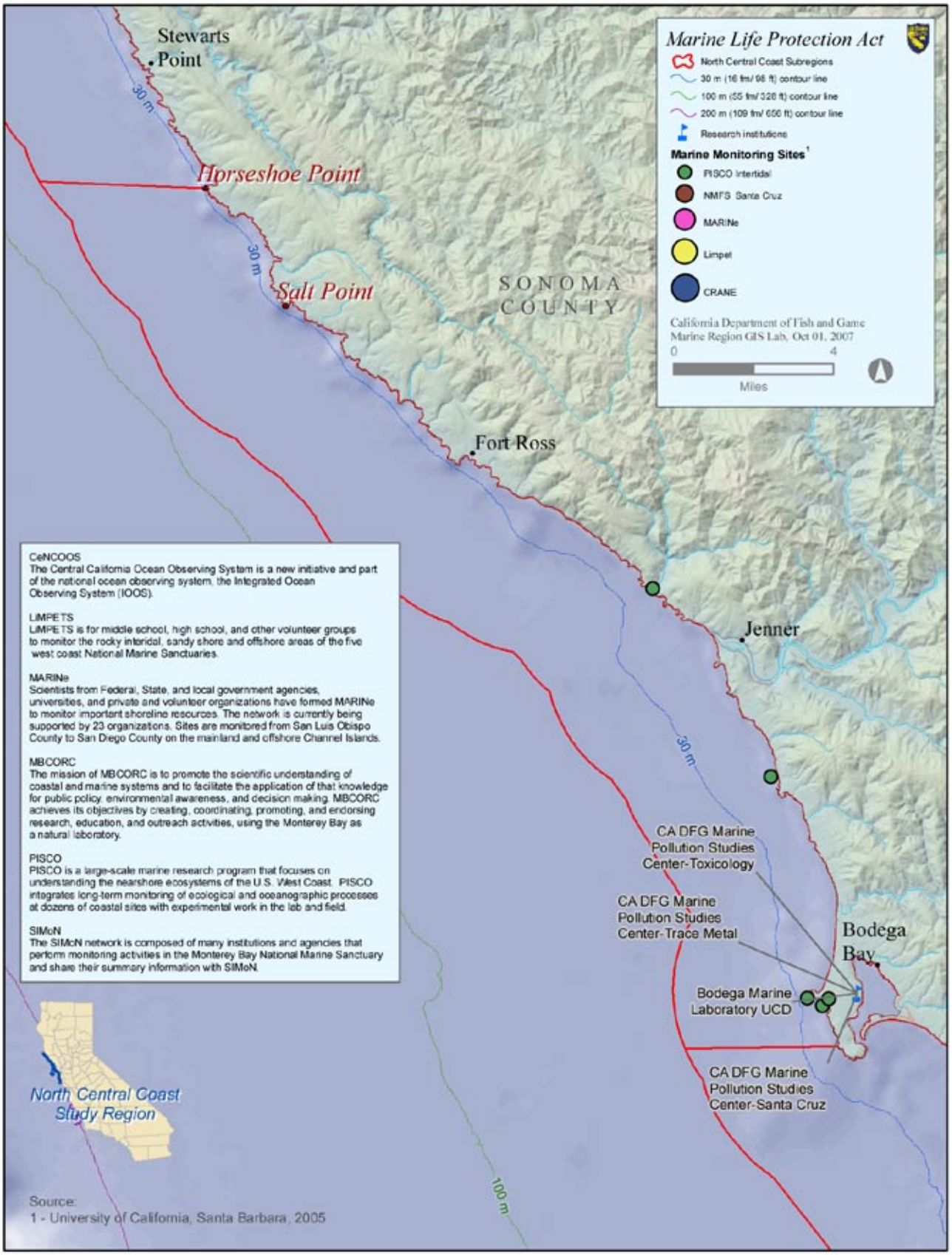
Figure 7.5-1c
Research, Education and Monitoring
Subregion 3: Bodega Head to Double Point



Source: CDFG, 2007a

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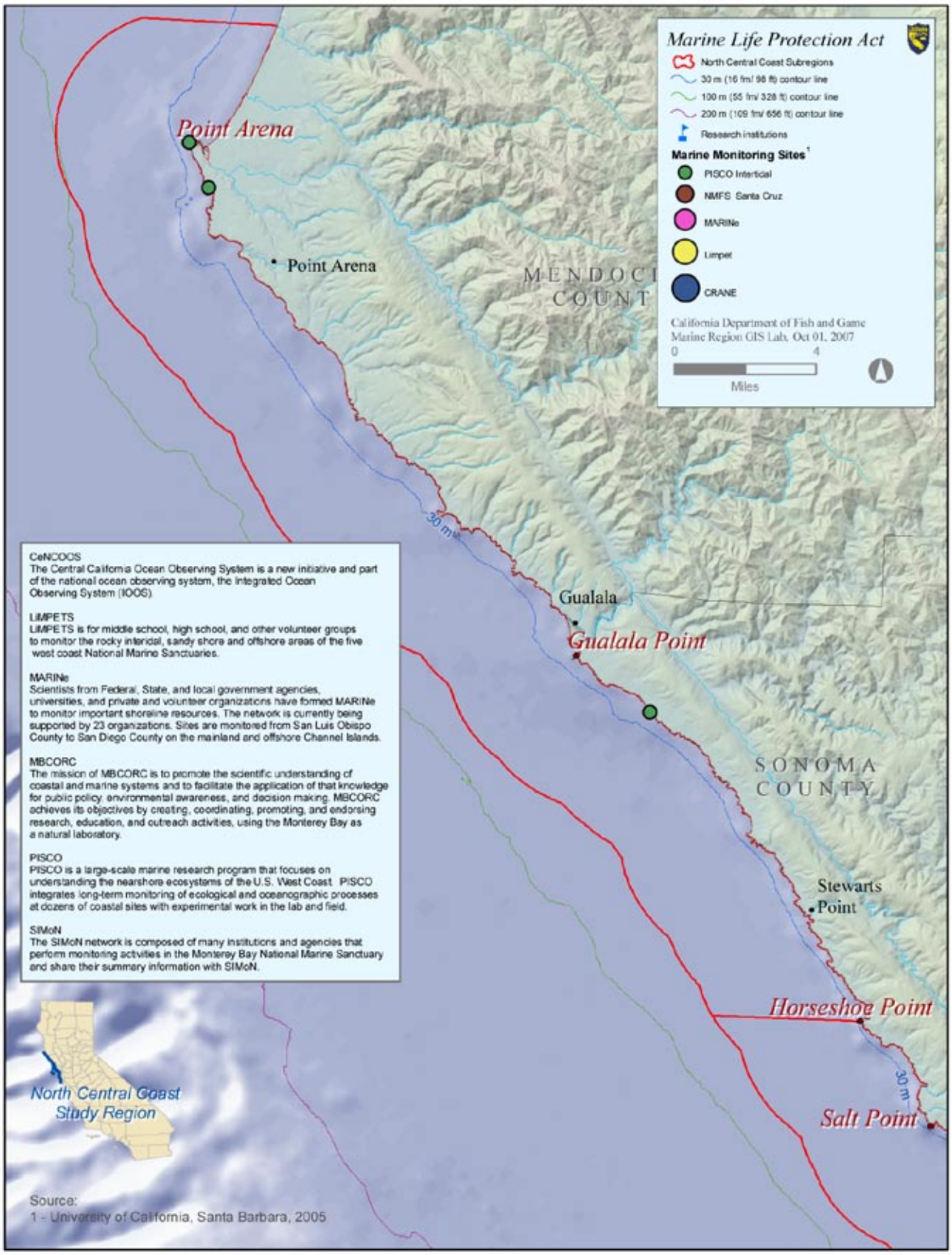
Figure 7.5-1b
Research, Education and Monitoring
Subregion 2: Horseshoe Point to Bodega Head



Source: CDFG, 2007a

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Figure 7.5-1a
Research, Education and Monitoring
Subregion 1: Point Arena to Horseshoe Point

- The Romberg Tiburon Center is operated by San Francisco State University. Its research focuses on understanding the San Francisco Bay, surrounding wetland environments, and the open ocean.
- PRBO Conservation Science was founded in 1965, and focuses on four key research areas: (1) Ocean predators as bio-indicators of climate change and habitat quality, (2) population dynamics, reproduction, and survival of seabird, marine mammal and white shark populations, (3) life history characteristics: diet, feeding ecology, and energetic needs of seabirds in relation to marine fisheries and pollutions, and (4) creation of marine protected areas and marine reserves to protect ocean ecosystems.
- The Southwest Fisheries Science Center is adjacent to University of California Santa's Cruz's Long Marine Laboratory. It works on stock assessments, population dynamics, ecological linkages, and economics of Pacific coast groundfish and Pacific salmon.
- Research at the Marine Mammal Center focuses on marine mammal health to understand the causes of marine mammal strandings.
- PISCO is a large-scale interdisciplinary marine research program based at four academic institutions on the U.S. west coast, including the University of California, Santa Cruz, and Stanford University. PISCO has several intertidal and subtidal monitoring sites in the north central coast study region.
- The Monterey Bay Aquarium Research Institute was founded in 1987. It is a center of advance research and education in ocean science.

Many government agencies around the north central coast study region sponsor, coordinate, collaborate and conduct scientific research. In addition, there are three national marine sanctuaries, Monterey Bay, Gulf of the Farallones, and Cordell Bank that are engaged in research in the north central coast study region. The Gulf of the Farallones National Marine Sanctuary (GFNMS) supports several long-term monitoring programs including Beach Watch and Sanctuary Ecosystem Assessment Surveys for the Pelagic and Rocky Intertidal Habitats. The Cordell Bank National Marine Sanctuary, in partnership with other governmental agencies, initiated a long term study to classify habitats and monitor fishes and maco-intervertebrates on and around Cordell Bank. The Cordell Bank, Gulf of the Farallons, and Monterey Bay national marine sanctuaries participate in the West Coast Observation Project, which collects various oceanographic measurements.

The following is a list of governmental agencies that support research in the north central coast study region.

- The CDFG works to monitor and asses the distribution and abundance of priority species and habitats in order to assist decision-makers.

- California Sea Grant administered by the University of California, focuses on research, conservation and use of coastal and marine resources.
- The San Francisco Bay National Estuarine Research Reserve (NERR), the U.S. Geological Survey and the National Park Service (at Point Reyes National Seashore and the Golden Gate National Recreation Area) support long-term research and monitoring.
- The Monterey Bay National Marine Sanctuary coordinates the Sanctuary Integrated Monitoring Network and works with more than forty institutions and organizations in the Monterey Bay area that are investigating intertidal habitats, rocky reefs, kelp forests, sandy seafloor habitats, and oceanography within the Sanctuary. This program is currently being expanded to the Gulf of the Farallones and Cordell Bank National Marine Sanctuaries

Non-governmental organizations also contribute to research in the region. Oikonos-Ecosystem Knowledge is a non-profit 501(c)(3) organization working to study distributions and important areas for seabirds and marine mammals off north and central California. Refer to Table 7-22 for a listing of research and monitoring programs in the study region.

Table 7-22. Research and Monitoring Programs in the Study Region

Beach Watch: Beach Watch was established by Gulf of the Farallones National Marine Sanctuary in 1993. It trains citizen-scientists to survey seabirds and marine mammals on coastal beaches from Point Año Nuevo to Bodega Head. Beach Watch volunteers conduct oil spill sampling and tar ball retrieval to assist the California Office of Spill Prevention and Response.
Center for Integrative Coastal Observation, Research and Education (CI-CORE): The California State University CI-CORE is a distributed coastal observatory for applied coastal research and monitoring in the nearshore (<100 m water depth) along the entire California coastline.
Bodega Ocean Observing Node: A coastal ocean observing system within the Central and Northern California Ocean Observing System (CeNCOOS) based at the Bodega Marine Laboratory.
California Current Marine Conservation Initiative: PRBO Conservation Science is implementing this initiative with a primary goal of conserving the complex food webs of the California Current System, with an emphasis on central California.
California Sea Grant: The statewide program works at public and private universities, industry, government, and the public to conduct research on water quality, aquaculture, fisheries, fish habitat, and non-indigenous species.
Central California Ocean Observing System: This new initiative is part of the national Integrated Ocean Observing System (IOOS).
Coastal Oceans Currents Monitoring Program: A state multi-institution, interagency collaboration at Bodega Marine Laboratory for monitoring coastal currents with high frequency (HF) radar units at Point Reyes, Bodega Marine Laboratory and Gerstle Cove, and as far north as Point Arena.
Computational Assessments of Scenarios of Change for the Delta Ecosystem: USGS researchers are adapting and developing hydrologic, hydrodynamic, and biological models of the Bay-Delta watershed and Sacramento-San Joaquin River Delta to explore scenarios of change induced by factors such as global warming, water and ecosystem management, land use, and earthquakes.

Cordell Bank Ocean Monitoring Program: Research on variability in the pelagic ecosystem around Cordell Bank was initiated by the Cordell Bank National Marine Sanctuary and Point Reyes National Seashore in 2004.
Cooperative Research and Assessment of Nearshore Ecosystems: The Cooperative Research and Assessment of Nearshore Ecosystems is a California statewide monitoring program developed by the CDFG in cooperation with other research scientists. The program was implemented in 2004 but has not continued at all sites.
Long-term Monitoring Program and Experiential Training for Students: Monitoring key intertidal, sandy shore, and offshore areas in the five west coast National Marine Sanctuaries. Monitoring is conducted by students in middle and high schools, and other volunteer groups.
Long-term Monitoring of Cordell Bank: The Cordell Bank National Marine Sanctuary, in partnership with the National Marine Fisheries Service Laboratory in Santa Cruz, the U.S. Geological Survey, and the CDFG, initiated a long term study to classify habitats and monitor fishes and macro-invertebrates on and around Cordell Bank.
Oikonos-Ecosystem Knowledge: The organization supports scientists to collect and assemble the data, develop maps, and assess spatial and temporal distributions of marine mammals and seabirds off the California coast.
Pacific Estuarine Ecosystem Indicator Research Center: A collaborative effort at Bodega Marine Laboratory by 28 principal scientists, including ecotoxicologists, ecologists, biochemists, microbiologists, and remote sensing experts, at University of California Davis and University of California Santa Barbara with the goal of developing new indicators of estuarine wetland health in marsh plants and animals.
Partnership for Interdisciplinary Studies of Coastal Oceans (PISCO): Interdisciplinary research focuses on three issues: (1) how currents, upwelling, and other physical and ecological processes affect the plants and animals of coastal marine ecosystems, (2) how coastal ocean ecosystems respond to shifts in water temperature, currents, and other factors that may vary with global climate change, and (3) how ocean circulation affects the dispersal of marine organisms in their earliest larval stages. PISCO maintains an array of intertidal and subtidal monitoring sites in central northern California.
PRBO Conservation Science: For over 30 years PRBO scientists have gathered year-round observations of seabirds and marine mammals on the Southeast Farallon Islands through a cooperative agreement with the U.S. Fish and Wildlife Service. Since the 1971 oil spill in San Francisco, PRBO scientists collected comprehensive information on beached birds in the Pacific (1971–1986) and documented oiled wildlife on the Farallon Islands daily since 1977.
Resource Assessment Program: The CDFG is initiating program to inventory, monitor, and assess the distribution and abundance of priority species, habitats, and natural communities in California, bringing together many efforts to collect, compile, and disseminate information.
Rocky Intertidal Monitoring: A long-term monitoring program designed by Gulf of the Farallones National Marine Sanctuary to track population dynamics of organisms in rocky intertidal habitats.
San Francisco Bay National Estuarine Research Reserve: The reserve supports a variety of research projects on nutrient loading, seagrass restoration, habitat mapping and change, channel geomorphology, and the impacts of invasive species. It also participates in a NERR System-wide Monitoring Program.
Sanctuary Education Awareness and Long Term Stewardship: Since 1996, more than 65 volunteers have helped the Gulf of the Farallones National Marine Sanctuary protect pupping harbor seals in Tomales Bay and Bolinas Lagoon.

Sanctuary Ecosystem Assessment Surveys of the Pelagic Habitat: Surveys that were designed by Gulf of the Farallones National Marine Sanctuary investigate the relationship between hydrographic conditions, physical features and the distribution and abundance of marine organisms (seabirds, marine mammals, sea turtles, krill, and phytoplankton) in the vicinity of the Gulf of the Farallones region and the coastal and pelagic region west of Sonoma County.
Sanctuary Integrated Monitoring Network: The Sanctuary Integrated Monitoring Network is composed of many institutions and agencies that perform monitoring activities in the Monterey Bay National Marine Sanctuary and share their summary information with the Sanctuary Integrated Monitoring Network.
Southwest Fisheries Science Center: Research is focused on population dynamics, ecological linkages, and economics of Pacific coast groundfish and Pacific salmon. Groundfish under study include rockfishes, flatfishes, Pacific whiting, sablefish, and lingcod; salmon include Coho, Chinook, and steelhead. Conduct aerial surveys of pinnipeds and cetaceans.
The Marine Mammal Center: Research is focused on diseases carried by marine mammals, diagnostic tests and clinical procedures to improve care of marine mammals, and tagging studies to monitor rehabilitated marine mammals following their release.
U.S. Geological Survey: The USGS maintains a website “Access San Francisco Bay and Delta”, which contains information about the region. The Bay Area Regional Database (BARD), supported by the U.S. Geological Survey, contains bathymetry for the San Francisco Bay and Suisun Bay and Delta, and other related information.
Tomales Bay Life: The Tomales Bay Watershed Council in collaboration with the National Park Service is conducting an all tax biodiversity inventory of species in Tomales Bay. Numerous researchers from across the US have conducted rapid inventories of species ranging from diatoms to fish within the bay.
National Park Service Inventory and Monitoring Program: Long-term monitoring of several indicators of ecosystem health in the San Francisco Bay Area. Wetlands delineation, Western Snowy Plovers, and pinnipeds are examples. For pinnipeds, data have been collected by trained volunteers and technical biologists on harbor seals during the breeding season and molt, on elephant seals during the breeding season and molt, and sea lions year round within the parks. The data include population counts and productivity, with annual reports. The area of survey for harbor seals extends beyond the parks from Sea Ranch south to Fitzgerald Marine Reserve.
West Coast Observation Project: All five National Marine Sanctuaries on the west coast of the United States (including the three in or adjacent to the north central coast study region, participate in this effort which gathers data on ocean temperature, currents, oxygen, salinity, wind speed, turbidity, fluorescence, and other indicators.
Source: CDFG 2007a.

CDFG processes scientific collecting permit applications, and they are recorded on a statewide basis. Table 7-23 shows the total number of permits issued in California from 1989 through 2006. The highest numbers of permits issued since the database began were in 2004 and 2005.

Table 7-23. Number of Scientific Collecting Permits Issued by CDFG Statewide, 1989–2006

Year	Number of Permits
1989	1,654
1990	455
1991	1,347
1992	812
1993	1,229
1994	931
1995	1,207
1996	989
1997	1,212
1998	913
1999	1,169
2000	975
2001	1,078
2002	1,218
2003	1,306
2004	1,740
2005	1,717
2006	1,492

Source: CDFG 2007a.

One condition associated with collecting permits is that the holder submits a Report of Specimens Collected or Salvaged within 30 days of permit expiration. For the north central coast study region, 65 of these reports were filed from 1999 and 2006. Of these, 32% were for marine plants. Table 7-24 shows a breakdown of reports submitted by subregion in the north central coast study region over a one and ½ year period. By far, the highest number of collections was reported in subregion 3, within and around Bodega Bay.

Table 7-24. Percent Scientific Collecting Permit Reports

Subregion No.	Subregion Name	Percent of Scientific Collecting Permits for Which Reports Were Filed*
1	Alder Creek/Point Arena to Horseshoe Point	12%
2	Horseshoe Point to Bodega Head	18%
3	Bodega Head to Double Point	62%
4	Double Point to Point San Pedro	12%
5	Point San Pedro to Pigeon Point	23%
6	Farallon Islands	3%

* Each report may cover multiple subregion.

Source: CDFG 2007a.

7.5.2. Regulatory Framework

Coastal and open water jurisdictions, resource-based agencies, and commissions are described in Chapter 1 of this EIR. Regulations pertaining specifically to research and education are described further below.

7.5.2.1. Federal Plans, Programs, and Policies

National Park Service

The NPS conducts research to improve resource management, including issuing permits for research on natural resources and archaeology, and monitoring resources and ecosystems within managed areas.

7.5.2.2. State Plans, Programs, and Policies

California Department of Fish and Game

Commission regulation (14 CCR § 650) authorizes the take or possession of marine plants or animals for scientific, educational, or propagation purposes with a permit issued by the CDFG. Permits may be issued to:

- Employees of local, state and federal agencies who take specimens in connection with their official duties.
- Faculty, professional staff, college level students of, or individuals hired by; public or private companies, educational institutions, zoological gardens or aquariums, in or out of state.
- Individuals who take wildlife or marine plants for other permittees or pursuant to environmental protection documents required by law.

- Individuals who possess a valid federal Bird Marking and Salvage Permit. Holders of this federal permit are not required to obtain a state permit to take migratory birds, other than raptorial birds.

There are three types of permits: resident, non-resident, and student. Resident and non-resident permits are valid for 2 years, and student permits are valid for 1 year. Each permit is reviewed and approved on a case-by-case basis. In some areas, such as in marine protected areas, additional specific restrictions may be applied. Scientific collecting may be allowed on a case-by-case basis in all three classifications of state MPAs.

Permit requestors must indicate on their application the following components:

1. species and numbers to be collected
2. collection locations
3. methods/techniques
4. purpose for collecting
5. disposition of specimens

7.5.3. Impact Analysis

7.5.3.1. Methodology

Effects to scientific and educational facilities were assessed by evaluating the potential change in research and education use patterns resulting from the proposed MPA network component.

7.5.3.2. Criteria for Determining Significance

Based on Appendix G of the State CEQA Guidelines and professional judgment, the project would have a significant impact on research and education oriented resources if it:

- Would include scientific or educational facilities or require the construction or expansion of scientific or educational facilities that might have an adverse effect on the environment.
- Would decrease research and educational opportunities.

Basic data collection, research, experimental management, and resource evaluation activities which do not result in a serious or major disturbance to an environmental resource, are categorically exempt under CEQA (PRC Sections 21083 and 21087).

7.5.3.3. Environmental Impacts

Impact RES-1: Effects on Scientific Research or Education Opportunities

Proposed Project: No Impact to Potentially Beneficial Impact

One of the goals of the MLPA is to support scientific and educational activities, thereby increasing research and educational opportunities. Existing research activities include various monitoring programs that would benefit from the establishment of an MPA network component because it would eliminate human consumptive uses within these areas, and thereby remove one variable that may affect the outcome of the research study. Educational activities would be supported within the proposed MPA network component if directed at improving the general or technical understanding and appreciation of marine resources and habitats and scientific methodology, and to assist researchers in making observations and measurements. For example, educational activities such as tide pool and intertidal surveys, and various sampling tows (bottom grabs, midwater trawls, plankton tows), which are used to assess and study the marine environment, may be allowable within the proposed MPAs if part of an approved scientific research, and are carefully planned to avoid disruption to other critical habitats. Therefore, educational activities and research that contribute to the management and enhancement of marine species would be compatible with the purposes of the proposed MPAs, and are likely to occur. While marine-oriented monitoring is necessary for understanding the changes within MPAs over time, the construction or expansion of scientific or education facilities is not required as part of the Proposed Project, and it's occurrence as a result of project implementation is speculative. Should additional land-based facilities be developed at some time in the future, they would be subject to independent CEQA and land planning review by local land use authorities. Therefore, the Proposed Project would not result in an impact associated with construction and expansion of such facilities.

Educational and study opportunities are improved by the presence of MPAs near research institutions. MPAs that include some established monitoring sites within their boundaries while leaving others outside allow for both a baseline of data to determine change over time and comparison with non-MPA areas. The proposed project includes many state marine reserves or high-level protection state marine conservation areas less than 15 miles from major marine research institutions, including [Bodega Marine Lab, California State University of San Francisco, University of California Sea Grant Extension Program, Stanford University, and San Jose State University).

Mitigation—No mitigation is required because there would be no impact.

Alternative 1: No Impact to Potentially Beneficial Impact

Potential impacts on the ability to conduct existing research or to the construction of new facilities associated with Alternative 1 would be the same as those described

above for the Proposed Project. Therefore, Alternative 1 would not result in a negative impact.

Mitigation—No mitigation is required because there would be no impact.

Alternative 2: No Impact to Potentially Beneficial Impact

Potential impacts on the ability to conduct existing research or to the construction of new facilities associated with Alternative 2 would be the same as those described above for the Proposed Project. Therefore, Alternative 2 would not result in a negative impact.

Mitigation—No mitigation is required because there would be no impact.

Alternative 3: No Impact to Potentially Beneficial Impact

Potential impacts on the ability to conduct existing research or to the construction of new facilities associated with Alternative 3 would be the same as those described above for the Proposed Project. Therefore, Alternative 3 would not result in a negative impact.

Mitigation—No mitigation is required because there would be no impact.

7.6. Vessel Traffic

This section describes the existing setting and potential vessel traffic impacts of the Proposed Project and its alternatives. Specifically, it describes existing conditions related to vessel traffic; summarizes the overall federal, state, and regional/local regulatory framework for vessel traffic that would affect implementation of an MPA network component; analyzes the potential impacts of the Proposed Project and its alternatives on vessel traffic; and identifies mitigation measures to address significant impacts, as appropriate.

The area west of the Golden Gate Bridge contains some of the busiest shipping lanes in the state. Over 6,000 commercial vessels (excluding domestic fishing vessels) enter and exit the San Francisco Bay each year. Less than 25% of the vessels are of intermediate size (draft <50 feet) and about 5% are large vessels (draft >50 feet). The overall number of commercial fishermen and vessels for the study region and San Francisco Bay combined has declined for the period 1992 through 2006. (CDFG 2007a.)

7.6.1. Environmental Setting

Major considerations for the environmental setting include the locations of major ports and other transportation nodes, types and numbers of commercial and recreational vessels, and their associated movement in and around the study region.

7.6.1.1. Major Port Complexes and Transportation Nodes

For reporting purposes, CDFG organizes California ports geographically into nine port complexes along the entire state. The north central coast study area encompasses two port complexes: Bodega Bay and San Francisco. Additionally, Point Arena and Anchor Bay, which are the two southernmost ports in the Fort Bragg port complex are within the study region. A brief profile of the port complexes in the study region is provided below.

- **Southern Fort Bragg port Complex—Point Arena/Anchor Bay:** Port Arena and Anchor Bay are the only two ports from the Fort Bragg complex that are within the bounds of the study region. These ports are located approximately 130 and 115 miles north of San Francisco, respectively. During 2006, there were 31 commercial vessels, 33 commercial fishermen, and 17 processors that reported landings in Point Area with none reported in Anchor Bay. The top ten fisheries landed in these ports in 2006, in order of importance, were red urchin, salmon, nearshore finfish, Dungeness crab, lingcod, shelf rockfish, sablefish (non-trawl—line and trap), tuna, spot prawn (trap) and slope rockfish/grenadier. The total value of all landings in 2006 was over four million dollars, with over half a million pounds landed. In a 2006 federal socioeconomic study, the County of Mendocino was classified as “most vulnerable” with high levels of dependence on commercial fishing and low levels of resilience.
- **Bodega Bay Port Complex:** The Bodega Bay port complex includes various ports north of San Francisco. The port complex delineation for the Bodega Bay port complex follows the Commercial Fishery Information System database guidelines and includes ports such as: Dillon Beach, Timber Cove, Marshall, Bodega Bay, Inverness, Point Reyes, Marconi Cove, Bolinas and Tomales Bay. The top ten fisheries landed in these ports in 2006, in order of importance, were Dungeness crab, salmon, nearshore finfish, tuna, Dover sole/thornyhead/sablefish (trawl), “other” flatfish, California halibut, shelf rockfish, roe herring, and slope rockfish/grenadier (note that highly migratory [e.g. tuna] and trawl fisheries [e.g. slope rockfish] occur outside of state waters and therefore outside the study area).
- **San Francisco Bay Port Complex:** The San Francisco Bay port complex includes various ports in and around San Francisco Bay. The port complex delineation for the San Francisco Bay port complex follows the Commercial Fishery Information System database guidelines and includes ports such as San Francisco, Princeton/Half Moon Bay, Sausalito, Richmond, Oakland and Berkeley. In 2006, there were 271 commercial vessels, 270 commercial fishermen, and 114 processors that reported landings in these ports. The major fisheries landed in these ports in 2006, in order of importance, were Dungeness crab, California halibut, salmon, Dover sole/sablefish/thornyhead (trawl), “other” flatfish, sablefish (non- trawl—line and trap), nearshore finfish, slope rockfish/grenadier, shelf rockfish, and lingcod.

7.6.1.2. Vessel Types

The following sections describe the major types of vessels that venture out from north central coast ports or that transit within the north central coast study region.

Commercial and Recreational Fishing Vessels

Commercial and recreational fishing vessels can be categorized into three basic modes: commercial fishing vessels, commercial passenger fishing vessels (CPFV), and private and rental skiffs

Commercial Passenger Fishing Vessels

CPFVs, also called party boats, carry recreational anglers to ocean fishing locations for a fee. CPFVs have the greatest range of any recreational fishing mode and are generally limited by travel time, and less so by weather or other considerations. CPFVs may carry up to 40–50 anglers, although a passenger load of 10–30 is more common; some small CPFVs are known as “six-packs” due to their reduced passenger-carrying ability (CDFG 2007a).

In general, CPFV’s north of and including Bodega Bay operate in waters north to Fort Ross, while CPFV’s from Bodega Bay and Tomales Bay may operate south to Point Reyes. Several CPFVs conduct single-day trips to the Farallon Islands. Additionally, many San Francisco Bay-based CPFV operators make ocean trips. CPFV’s from Princeton and Half Moon Bay tend to fish in waters between Pillar Point and Pigeon Point.

Private and Rental Skiffs

Private and rental skiffs, with some exceptions, generally fish closer to port or launch ramp areas than CPFVs, although albacore anglers may travel considerable distances. The port areas for private and rental boats within the study region are generally the same as those for CPFVs. Additionally, various boat ramps and launch facilities are used, some of which include Timber Cove, Westside Ramp, Doran Park, Lawson’s Landing, Miller Park, Sausalito, Berkeley, Estuary Park, Oyster Point, Oyster Cove, Anchor Bay and Princeton.

7.6.1.3. Vessel Counts

The following section reports vessel counts from the CRFS, California Department of Motor Vehicles and CDFG’s vessel permitting data for the five major ports in the study area.

According to the California Department of Motor Vehicles, there are approximately 51,000 registered recreational marine or aquatic vessels in the study region (Table 7-25) (CDFG 2007a).

Table 7-25. Number of Registered Recreational Marine or Aquatic Vessels in the North Central Coast Study Region as of December 31, 2005

County	Number Registered Recreational Vessels
Mendocino	5,231
Sonoma	19,641
Marin	9,338
San Francisco	4,089
San Mateo	12,636

Source: CDFG 2007a.

California Recreational Fisheries Survey

The CRFS conducts interviews of anglers returning to public launch ramps. These interviews represent a sample of the total number of anglers. Anecdotal information collected includes the distribution of recreational, commercial, and non-consumption trips taken by surveyed vessels (Table 7-26). (CDFG 2007a.)

Table 7-26. Number of Trailered Private and Rental Boats Surveyed by CRFS, January to November, 2006

Type of Activity	Number of Counted Vessels			
	Bodega Bay	Pillar Point	Total	Percent of Total
Fishes recreationally for finfish	2,347	1,766	4,113	95.3
Fished recreationally for intervertebrates	26	21	47	1.1
Intended to fish recreationally but no gear in water	6	7	13	0.3
Total recreational fishing	2,379	1,794	4,173	96.7
Fished commercially	19	10	29	0.7
Total Vessels Fishing	2,398	1,804	4,202	97.3

Source: CDFG 2007a.

The CRFS figures are not indicative of the overall proportions of vessels engaging in consumptive and non-consumptive activities within the north central coast study region. Many vessels, in particular sailboats, are moored in the region's marinas and buoyed areas (CDFG 2007a).

7.6.2. Regulatory Framework

Coastal and open water jurisdictions, resource based agencies and commissions are described in Chapter 1 of this EIR. Regulations pertaining specifically to vessel traffic are described further below.

7.6.2.1. Federal Plans, Programs, and Policies

Federal regulatory oversight includes zones of different activities and restrictions, as well as international navigational rules for vessel movement. These include Danger Areas, Regulated Navigational Areas, Disposal and Dumping Areas, and Navigational Rules.

Danger Areas

According to charting definitions (USDC 1997), a danger area is "…a specified area above, below or within which there may exist potential danger from military, civil, natural or manmade sources. A danger area may be categorized as a prohibited area, exercise area, firing area, or missile test area."

Regulated Navigational Area

A Regulated Navigation Area (RNA) is a region of water within a boundary defined by the United States Coast Guard. It can incorporate a variety of sub-regions such as Safety Zones, Defense Areas, Security Zones, and Regulated Areas (USDC 1997). Within these waters, the local district commander has the authority to regulate vessels deemed to be hazardous or facing hazardous conditions. Regulations include vessel size, speed, draft limitations and other operating conditions, as well as times of entry, exit, and specific movements. The district commander's authority includes a formalized Traffic Separation Scheme (TSS) that helps to maintain and control commercial and large vessel two-way movements through series of designated and adjoining lanes and turnabout locations. Vessel Traffic Services (VTS) is a complementary program that provides advice, control and management of participating vessels. A primary distinction between the two programs is that the TSS is a physically mapped suite of locations subject to Rule 10 of the International Navigation Rules, while the VTS is a staffed facility that communicates with crews of the vessels to facilitate their safe passage.

Disposal and Dumping Areas

The disposal and dumping areas were established for various purposes related to dumping of toxic wastes (no longer allowed) and/or depositing of dredged materials. They may constitute hazards to navigation. There are three primary types: 1) the dumping areas established by the EPA, 2) the dumping areas established by the Navy, and 3) the spoil, disposal and dumping grounds established by the U.S. Army Corps of

Engineers. The proposed MPA network component would not be located in known disposal or dumping areas.

Navigation Rules for Avoiding Collisions at Sea

International Navigation Rules (Rules) were formalized in the Convention on the International Regulations for Preventing Collisions at Sea, 1972, and were adopted by Congress as the International Rules Act of 1977. The Rules (commonly called 72 COLREGS) are part of the Convention, and vessels flying the flags of states ratifying the treaty are bound to the rules (U.S. Coast Guard 2006). The United States has ratified this treaty and all United States flag vessels must adhere to these Rules where applicable. The COLREGS include rules on steering and sailing, look-out, safe speed, risk of collision and actions to avoid collision, traffic separation schemes, conduct of vessels in sight of one another, and conduct of vessels in restricted visibility. The Rules also include specific requirements for vessels engaged in fishing, and vessels restricted in their maneuverability. The International Rules in the Navigation Rules book is published by the Coast Guard. These Rules are applicable on waters outside of established navigational lines of demarcation. The lines are called COLREGS Demarcation Lines and delineate those waters upon which mariners shall comply with the Inland and International Rules. COLREGS Demarcation lines are contained in Title 33 of the Code of Federal Regulations, part 80 (33 CFR 80), the Navigation Rules manual.

7.6.2.2. State Plans, Programs, and Policies

State regulatory oversight includes implementation of the Oil Spill Prevention and Response Act (OSPRA).

Lempert-Keene-Seastrand Oil Spill Prevention and Response Act

The California State Legislature enacted OSPRA (SB 2040; Statutes of 1990, chapter 1248) at Government Code Section 8670.1 et seq. The goals of OSPRA are to improve the prevention, removal, abatement, response, containment, and clean up and mitigation of oil spills in the marine waters of California. The Act (SB 2040) created harbor safety committees for the major harbors of the State of California to plan “for the safe navigation and operation of tankers, barges, and other vessels within each harbor…(by preparing)…a harbor safety plan, encompassing all vessel traffic within the harbor.” The legislation also established the California Office of Spill Prevention and Response to provide protection of natural resources from oil and other deleterious materials in areas through prevention, preparation, response, and restoration.

7.6.3. Impact Analysis

7.6.3.1. Methodology

Effects to vessel traffic were qualitatively assessed by evaluating the proposed MPA locations in relationship to known navigational rules such as Traffic Separation Schemes.

7.6.3.2. Criteria for Determining Significance

Based on Appendix G of the State CEQA Guidelines and professional judgment, it was determined that the Proposed Project would result in a significant impact on vessel traffic if it would:

- Substantially increase oceanic hazards, in particular due to changes in vessel traffic concentration (i.e., congestion).
- Result in disruption of existing vessel traffic patterns and marine navigation.

7.6.3.3. Environmental Impacts

Impact VT-1: Increase in Vessel Density and Oceanic Hazards

Proposed Project: Less than Significant

The proposed MPA network component establishes MPAs that have certain restrictions in terms of allowable activities; however, vessels would not be restricted from transiting through them. The primary vessel groups that would be potentially impacted by the proposed MPAs are those engaged in commercial and recreational fishing. These user groups may be displaced from some of the new MPAs, thereby forcing them to conduct their activities at the periphery of MPA boundaries or in other locations with fewer restrictions. This could result in an increased competition for resources in locations outside of MPAs, and potential increased concentration (i.e., congestion) in such locations. A secondary user group potentially impacted by the Proposed Project would be divers and scientific researchers attracted to the reserve's underwater habitats. Both within and outside of the proposed MPAs, there may be a minor increase in concentration of vessel traffic attributed to the primary and secondary user groups, which could conceivably create a hazard from having more boats operating in a smaller area.

However, captains and operators of each individual vessel would still be under the same international navigational rules as before the implementation of the MPAs. These rules place the responsibility upon individuals to pilot their vessels in a safe manner. Consequently, potential impacts related to vessel density and oceanic hazards from the Proposed Project would be less than significant.

Mitigation—No mitigation is required because impacts are not significant.

Alternative 1: Less than Significant

Potential effects associated with Alternative 1 would be similar to those described above for the Proposed Project. Impacts to vessel density and oceanic hazards associated with Alternative 1 would be less than significant.

Mitigation—No mitigation is required because impacts are not significant.

Alternative 2: Less than Significant

Potential effects associated with Alternative 2 would be similar to those described above for the Proposed Project. Impacts to vessel density and oceanic hazards associated with Alternative 2 would be less than significant.

Mitigation—No mitigation is required because impacts are not significant.

Alternative 3: Less than Significant

Potential effects associated with Alternative 3 would be similar to those described above for the Proposed Project. Impacts to vessel density and oceanic hazards associated with Alternative 3 would be less than significant.

Mitigation—No mitigation is required because impacts are not significant.

Impact VT-2: Disruption of Existing Marine Navigation

Proposed Project: No Impact

Commercial vessel TSSs would not be altered by the Proposed Project, nor would RNAs, VTSs, or international rule of navigation. The Proposed Project does not alter existing mainland ports and harbors. The proximity of MPAs to ports or major access points has been thought to cause problems to vessel traffic, particularly if vessels are required to travel over greater distances, or in dangerous conditions. However, as long as the vessels do not intend to extract resources, the MPAs do not restrict access and/or through passage.

Because vessel safety in emergencies and foul weather is critical, transit through and anchoring in MPAs is allowed in all of the proposed MPAs alternatives. There are areas where boating and anchoring are restricted or limited to specific areas, for example in certain areas surrounding the Farallon Islands. Transit, however, is allowed and anchoring in emergency situations is always permitted pursuant to federal law. Since these restrictions exist in the present MPAs in these locations, the Proposed Project and alternative would not change existing use patterns.

While commercial fishing vessels may be required to travel slightly longer distances to fish beyond MPA boundaries, non-consumptive marine navigation will not

be disrupted by the Proposed Project; therefore, there would be no impact to existing marine routes and navigation resulting from the Proposed Project.

Mitigation—No mitigation is required because there would be no impact.

Alternative 1: No Impact

Potential effects associated with Alternative 1 would be similar to those described above for the Proposed Project. There would be no impacts to marine navigation associated with Alternative 1.

Mitigation—No mitigation is required because there would be no impact.

Alternative 2: No Impact

Potential effects associated with Alternative 2 would be similar to those described above for the Proposed Project. There would be no impacts to marine navigation associated with Alternative 2.

Mitigation—No mitigation is required because there would be no impact.

Alternative 3: No Impact

Potential effects associated with Alternative 3 would be similar to those described above for the Proposed Project. There would be no impacts to marine navigation associated with Alternative 3

Mitigation—No mitigation is required because there would be no impact.